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Urban Traffic Control System (UTCS) Software Support Project

Volume III - 2GCF Routines-Program Listings

June 1976

Final Report

DEPARTMENT OF TRANSPORTATION
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FOREWORD

This report documents the results of the research performed to date on the Second Generation UTCS Software System. This system provides for on-line traffic signal optimization. The documentation will be of interest to urban traffic engineers of cities who desire to undertake experiments to determine the effectiveness of applying second generation control software (in comparison with first generation type software) for various types of networks or portions of networks.

This report is comprised of three volumes which detail the second generation software which was converted from machine dependent language to FORTRAN and those enhancements to the original software made during the conversion effort. This project was conducted for the Federal Highway Administration, Office of Research, Washington, D. C., under Contract DOT-FH-11-8317 "UTCS Software Support."

While the software system described in this report was operational in the Washington, D. C., test facility, it will require additional programing effort to render it operational in other cities. It is this same software system that will receive further investigation and become the subject of future research by the Federal Highway Administration.

Sufficient copies of this report are being distributed in sets of three volumes by FHWA bulletin to provide a minimum of one set to each FHWA regional office, one set to each FHWA division office, and one set to each State highway agency. Direct distribution is being made so that the State and division office copies are sent to the division offices.

Charles F. Scheffey
Director, Office of Research

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C. J. MacGowan, FHWA Contract Manager

16. Abstract

The Second Generation UTCS developed by TRW was converted from its machine dependent language to FORTRAN. Enhancements to the system included an improved technique for determining when traffic signal timing pattern recomputation should occur; a change to provide for maintenance of user defined signal phase splits or offsets; a recoding of the link/phase correlation; a modification in the offset optimization algorithm to properly compare optimum solutions for alternate cycle lengths; and numerous corrections to the UTCS data base. File maintenance for the source programs was developed, and all source images are in easily-modified magnetic tape formats. A source language editing program was added to the system library for the 2GC FORTRAN system. Documentation for routines which remain unchanged from the original 2GC was updated to reflect new documentation standards.

Volume I - 2GCF Routine Program Descriptions

Volume II - 2GCF Routine Program Descriptions (Concluded)

Volume III - 2GCF Routine Listings

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TABLE OF CONTENTS

Section		Page
2.6	ROUTINE LISTINGS	1
2.6.1	Routine A	2
2.6.2	Subroutine A5	10
2.6.3	Subroutine CHECK (A, B)	11
2.6.4	Subroutine CRTOUT	12
2.6.5	Routine A1	13
2.6.6	Subroutine BUFFERIN/OUT	15
2.6.7	Subroutine PKBL2	16
2.6.8	Subroutine UPBL2	17
2.6.9	Subroutine UPKMC	18
2.6.10	Routine B	19
2.6.11	Routine C	21
2.6.12	Routine E	22
2.6.13	Routine F	25
2.6.14	Routine H	26
2.6.15	Subroutine CAL15	29
2.6.16	Subroutine CALRL	30
2.6.17	Subroutine DECON	31
2.6.18	Subroutine E1SRT	32
2.6.19	Subroutine LKDAT	33
2.6.20	Subroutine MHEAD	37
2.6.21	Subroutine OUTAP	38
2.6.22	Subroutine OUT2G	39
2.6.23	Subroutine PRNTF	40

TABLE OF CONTENTS (Continued)

Section		Page
2.6.24	Subroutine SBYTC	41
2.6.25	Subroutine STAT	42
2.6.26	Subroutine STMSG	47
2.6.27	Subroutine TIMEH	48
2.6.28	Subroutine TSTAP	49
2.6.29	Subroutine TSTLP	50
2.6.30	Routine I	51
2.6.31	Subroutine PRPRED	56
2.6.32	Routine J	58
2.6.33	Subroutine BCDTH	60
2.6.34	Subroutine CDL	61
2.6.35	Subroutine CLS	62
2.6.36	Subrouting SDL	63
2.6.37	Subroutine TCSLP	64
2.6.38	Routine K	65
2.6.39	Subroutine CIC	73
2.6.40	Subroutine CNVT	74
2.6.41	Subroutine CRLF	76
2.6.42	Subroutine DCMAL	77
2.6.43	Subroutine DISIN	78
2.6.44	Subroutine DISNM	79
2.6.45	Subroutine GREEN	80
2.6.46	Subroutine KFTU	81
2.6.47	Subroutine TODAY	83

TABLE OF CONTENTS (Continued)

Section		Page
2.6.48	Subroutine TRIG	84
2.6.49	Subroutine SCODE	85
2.6.50	Subroutine SETCR	86
2.6.51	Routine M	87
2.6.52	Subroutine HFMT	94
2.6.53	Subroutine KFMT	95
2.6.54	Subroutine MSUB	97
2.6.55	Subroutine MSUB2	105
2.6.56	Subroutine SRCFT	106
2.6.57	Routine O	107
2.6.58	Subroutine PCKO	108
2.6.59	Subroutine UNPO	109
2.6.60	Routine P	110
2.6.61	Subroutine PCKP1	112
2.6.62	Subroutine UNPP1	113
2.6.63	Subroutine UNPP2	114
2.6.64	Routine Q	115
2.6.65	Subroutine Q1	116
2.6.66	Subroutine CALOP	117
2.6.67	Subroutine MOVER	118
2.6.68	Routine R	119
2.6.69	Routine S	120
2.6.70	Subroutine MBYTS	122
2.6.71	Subroutine UNPS	123

TABLE OF CONTENTS (Continued)

Section		Page
2.6.72	Routine T	124
2.6.73	Subroutine PCKT	127
2.6.74	Subroutine UNPT	128
2.6.75	Routine U	129
2.6.76	Routine V	130
2.6.77	Subroutine GDSUB	133
2.6.78	Subroutine PSUB2	134
2.6.79	Subroutine UPKV	135
2.6.80	Routine W	136
2.6.81	Subroutine INTRP	139
2.6.82	Subroutine PATGENT	140
2.6.83	Subroutine SMINT	144
2.6.84	Subroutine WCODE	145
2.6.85	Subroutine WSUB	146
2.6.86	Routine X	147
2.6.87	Routine Y	149
2.6.88	Routine MACRO	171
2.6.89	Subroutine FMODE	172
2.6.90	Subroutine OUTTBF	173
2.6.91	Routine RTN5	174
2.6.92	Subroutine TRFLG	176
2.6.93	Routine PREDICT	177
2.6.94	Subroutine LDMOE5	179
2.6.95	Routine RTSND	180

TABLE OF CONTENTS (Continued)

Section		Page
2.6.96	Subroutine IRTN	184
2.6.97	Subroutine LPHASV	185
2.6.98	Subroutine SMSCYL	186
2.6.99	Routine LSTSQS	187
2.6.100	Subroutine CORRECT	192
2.6.101	Subroutine LINKD	193
2.6.102	Subroutine LLGTHF	194
2.6.103	Subroutine LOADAT	195
2.6.104	Subroutine SRCH	197
2.6.105	Routine INTFC	198
2.6.106	Subroutine GETINT	200
2.6.107	Subroutine MACA	201
2.6.108	Subroutine PERIO5	202
2.6.109	Subroutine PUTEOFF	203
2.6.110	Routine TRNPAR	204
2.6.111	Subroutine GETBI	206
2.6.112	Subroutine GETBY	206
2.6.113	Subroutine HALF	206
2.6.114	Subroutine PKBIT	206
2.6.115	Subroutine PKBYT	210
2.6.116	Subroutine PKHW	210
2.6.117	Subroutine PTBI	206
2.6.118	Subroutine PTBY	206
2.6.119	Subroutine PTHLF	206

TABLE OF CONTENTS (Concluded)

Section		Page
2.6.120	Subroutine UNBIT	206
2.6.121	Subroutine UPBYT	210
2.6.122	Subroutine UPHW	210
2.6.123	Subroutine FMTNUM	211
2.6.124	Subroutine INTRNUM	211

2.6 ROUTINE LISTINGS

2.6.1 ROUTINE A

```
ROUTINE:  RTNA

      *   *  RTNA                                                                  1    1
             TITLE     '**** ROUTINE A   LEVEL 1 EXEC ****'                       1    2
      *      PROCEDURE TO ASSEMBLE FIXED MAP ARRAY FIELDS (MUX COMMAND,            1    3
      *       ALTERNATING STROBE BIT, AND SIGNAL ADDRESS)                          1    4
      *                                                                            1    5
      *      REFERENCED BY -                                                       1    6
      *      MAP       A1,B1,A2,B2,...,A2N,B2N    GENERATES 4N DATA WORDS -     1    7
      *                                             WORD 1 - MUX COMMAND           1    8
      *                                             WORD 2 -  1 STROBE, A1/B1      1    9
      *                                                       ADDRESS              1   10
      *                                             WORD 3 - MUX COMMAND           1   11
      *                                             WORD 4 - 0 STROBE, A2/B2       1   12
      *                                                      ADDRESS               1   13
      *                                             WORD 4N-1 - MUX COMMAND        1   14
      *                                             WORD 4N - 0 STROBE, A2N/       1   15
      *                                                       B2N ADDRESS          1   16
      *                                                                            1   17
      *      NOTE THAT THE FIRST STROBE/ADDRESS WORD ASSEMBLED WITH EACH           1   18
      *       MAP REFERENCE CONTAINS A 1 STROBE BIT, AND THAT TO ASSURE            1   19
      *       ALTERNATING STROBE VALUES AN EVEN NUMBER OF DATA WORD PAIRS          1   20
      *       MUST BE SPECIFIED IN EACH MAP REFERENCE                              1   21
      *                                                                            1   22
      MAP    CNAME                                                                1   23
             PROC                                                                 1   24
      I      DO        NUM(AF)-1                                                  1   25
      A      SET       AF((I-1)*1)                                                1   26
      A1     SET       D                                                          1   27
      J      DO        4                                                          1   28
      A1     SET       A1+((A-(J-1))&1)**(4-J)                                    1   29
             FIN                                                                  1   30
      B      SET       AF(I-1)                                                    1   31
      B1     SET       D                                                          1   32
      J      DO        5                                                          1   33
      B1     SET       B1+((B-(J-1))&1)**(5-J)                                    1   34
             FIN                                                                  1   35
             DATA      X'DD20C26E'                                                1   36
             GEN,1,6,4,5,16      I&1,0,A1,B1,D                                    1   37
             FIN                                                                  1   38
             PEND                                                                 1   39
              DEF       RTNA                                                      1   40
              DEF       STRTA                                                     1   41
             DEF       WMSBF,H5ARR,AP0M1,CPAN0U,H0LDMAP,HB6,AB,CB,MB,PB           1   42
             DEF       WMINF               ONE MIN FLAG FOR RTN. BJ              1   43
              DEF       ENDACTH                                                   1   44
              DEF       ENDACTI             END-ACTION FOR RTN. I                 1   45
              DEF       ENDACTW                                                   1   46
             DEF       END5                                                      1   47
             DEF       END51                                                     1   48
             DEF       LEVL5A                                                    1   49
             DEF       SRTN5                                                     1   50
             DEF       MINCTS                                                    1   51
             DEF       MIN5F                                                     1   52
             DEF       0PTIME                                                    1   53
             DEF       0PTIN                                                     1   54
              DEF       EI3                                                      1   55
              DEF       P1,P2,P3,P4                                              1   56
              DEF       PLENGTH                                                  1   57
              DEF       JAI                                                      1   58
              DEF       CPANIN                                                   1   59


              DEF       KMCSP                                                    1   60
              DEF       H0LD                                                     1   61
              DEF       AP0                                                      1   62
             DEF       CPAN0UT                                                   1   63
              DEF       MARR                                                     1   64
              DEF       MARRI                                                    1   65
              DEF       KCNT                                                     1   66
             DEF       JC0UNT                                                    1   67
             DEF       MINCYC15                                                  1   68
              DEF       QCNT                                                     1   69
              DEF       CPFLG                                                    1   70
             DEF       MMAST,HMAST,IMAST,KMAST,JMAST,WMAST,EMAST,QMAST          1   71
              DEF       LMAST                                                    1   72
              DEF       FMC                                                      1   73
             DEF       MAST                                                      1   74
              DEF       DUMAST                                                   1   75
             DEF       FMMARK                                                    1   76
              DEF       MP0KEY                                                   1   77
             DEF       SECF1                                                     1   78
              REF       BPSYSIF                                                  1   79
             REF       MACR0                                                     1   80
             REF       RTNA5                                                     1   81
             REF       MASK                                                      1   82
             REF       BARR                BUS DATA ARRAY                        1   83
             REF       BARRBYTE            BUS DATA ARRAY BYTE COUNT             1   84
             REF       CRT0UT                                                    1   85
              REF       *SBF                                                     1   86
             REF       RTNA1               LEVEL 2 EXEC                          1   87
              REF       FMT0JC                                                   1   88
              REF       RTC                                                      1   89
              REF       DBP                                                      1   90
              REF       NSECTM1                                                  1   91
              REF       NUMSCT                                                   1   92
              REF       *HSF                                                     1   93
              REF       *SF                                                      1   94
```

```
                REF     FMSYSF                                          1  95
                REF     FMSECF                                          1  96
                REF     RTNB                                            1  97
                REF     CRTFL1                                          1  98
                REF     CRTFL2                                          1  99
                REF     FMFBPS                                          1 100
                REF     SMTFLG                                          1 101
                REF     RTNM,RTNJ,RTNK,RTNE                             1 102
                REF     SAVRO                                           1 103
I8PCD           CNAME                                                   1 104
                PR8C                                                    1 105
LF              GEN,8,5,19,8,8,16   AF(1),0,BA(AF(2)),AF(3),0,AF(4)    1 106
                PEND                                                    1 107
*                                                                       1 108
                PSYS    1                                               1 109
                SYSTEM  UTCSREG                                         1 110
AFLAG           EQU     X'80'                                           1 111
BFLAG           EQU     X'80'                                           1 112
CFLAG           EQU     X'80'                                           1 113
DFLAG           EQU     X'00'                                           1 114
79298RDER       EQU     X'D3'                                           1 115
8RDER7929 EQU   X'03000000'                                             1 116
7929DEVICE EQU  0                                                       1 117
STAE4           STA,R10 4                                               1 118
                B8UND   8                                               1 119
P10             I8PCD   7929BRDER,BARR,BFLAG,BARRBYTE                   1 120
                I8PCD   79298RDER,P1,AFLAG,P1BYTE                       1 121
                I8PCD   79298RDER,MARR,DFLAG,MARRBYTE                   1 122
P11             I8PCD   79298RDER,BARR,BFLAG,BARRBYTE                   1 123
                I8PCD   79298RDER,P1,AFLAG,P1BYTE                       1 124
                I8PCD   79298RDER,HSARR,CFLAG,HSARRBYTE                 1 125
                I8PCD   79298RDER,APBM1,CFLAG,APBBYTE                   1 126
                I8PCD   7929BRDER,CPANBU,CFLAG,CPABYTE                  1 127
                I8PCD   79298RDER,MARR,DFLAG,MARRBYTE                   1 128
P20             I8PCD   79298RDER,BARR,BFLAG,BARRBYTE                   1 129
                I8PCD   79298RDER,P2,AFLAG,P2BYTE                       1 130
                I8PCD   79298RDER,MARR,DFLAG,MARRBYTE                   1 131
P21             I8PCD   79298RDER,BARR,BFLAG,BARRBYTE                   1 132
                I8PCD   79298RDER,P2,AFLAG,P2BYTE                       1 133
                I8PCD   79298RDER,HSARR,CFLAG,HSARRBYTE                 1 134
                I8PCD   79298RDER,APBM1,CFLAG,APBBYTE                   1 135
                I8PCD   79298RDER,CPANBU,CFLAG,CPABYTE                  1 136
                I8PCD   79298RDER,MARR,DFLAG,MARRBYTE                   1 137
P30             I8PCD   79298RDER,BARR,BFLAG,BARRBYTE                   1 138
                I8PCD   79298RDER,P3,AFLAG,P3BYTE                       1 139
                I8PCD   79298RDER,MARR,DFLAG,MARRBYTE                   1 140
P31             I8PCD   79298RDER,BARR,BFLAG,BARRBYTE                   1 141
                I8PCD   79298RDER,P3,AFLAG,P3BYTE                       1 142
                I8PCD   79298RDER,HSARR,CFLAG,HSARRBYTE                 1 143
                I8PCD   79298RDER,APBM1,CFLAG,APBBYTE                   1 144
                I8PCD   79298RDER,CPANBU,CFLAG,CPABYTE                  1 145
                I8PCD   79298RDER,MARR,DFLAG,MARRBYTE                   1 146
P40             I8PCD   79298RDER,BARR,BFLAG,BARRBYTE                   1 147
                I8PCD   79298RDER,P4,AFLAG,P4BYTE                       1 148
                I8PCD   79298RDER,MARR,DFLAG,MARRBYTE                   1 149
P41             I8PCD   79298RDER,BARR,BFLAG,BARRBYTE                   1 150
                I8PCD   79298RDER,P4,AFLAG,P4BYTE                       1 151
                I8PCD   79298RDER,HSARR,CFLAG,HSARRBYTE                 1 152
                I8PCD   79298RDER,APBM1,CFLAG,APBBYTE                   1 153
                I8PCD   79298RDER,CPANBU,CFLAG,CPABYTE                  1 154
                I8PCD   79298RDER,MARR,DFLAG,MARRBYTE                   1 155
*                                                                       1 156
                B8UND   8                                               1 157
PLIST           RES     0                                               1 158
* VALUE          VALUE   START ADDRESSES                                 1 159
* OF I8P         OF AMSF OF I/O COMMAND LISTS                            1 160
*   0                     BARR, P2, MARR.                               1 161
                DATA    P20                                             1 162
                DATA    0                                               1 163
*   0             1       BARR, P2, HSARR, MARR.                        1 164
                DATA    P21                                             1 165
                DATA    0                                               1 166
*   1                     BARR, P3, MARR.                               1 167
                DATA    P30                                             1 168
                DATA    0                                               1 169
*   1             1       BARR, P3, HSARR, MARR.                        1 170
                DATA    P31                                             1 171
                DATA    0                                               1 172
*   2                     BARR, P4, MARR.                               1 173
                DATA    P40                                             1 174
                DATA    0                                               1 175
*   2             1       BARR, P4, HSARR, MARR.                        1 176
                DATA    P41                                             1 177
                DATA    0                                               1 178
*   3                     BARR, P1, MARR.                               1 179
                DATA    P10                                             1 180
                DATA    0                                               1 181
*   3             1       BARR, P1, HSARR, MARR.                        1 182
                DATA    P11                                             1 183



                DATA    0                                               1 184
                B8UND   8                                               1 185
RTNATCB         RES     26                                              1 186
LEV2TCB         RES     26                                              1 187
LEV3TCB         RES     26                                              1 188
LEV5TCB         RES     26                                              1 189
CRTTCB          RES     26                                              1 190
$REG            RES     4                                               1 191
                B8UND   8                                               1 192
INTPRS          DATA    0,0                                             1 193
                DATA    INT60S                                          1 194
                DATA,1  2,0,0,0         INHIBIT I/O INTERRUPT           1 195
```

```
CLK1     DATA    0,0,INTER8,0                                          1  196
CLKXPSD  XPSD,0  CLK1                                                  1  197
INTXPSD  XPSD,0  INTPR8                                                1  198
*  CONNECT DIRECTLY TO COUNTER=0 INTERRUPT                             1  199
ARM5A    GEN,8,24  4,X'5A'                                             1  200
         GEN,8,24  X'C8',0                                             1  201
         DATA      CLKAPSD                                             1  202
         MTW,=1    CLOCK                                               1  203
*  CONNECT DIRECTLY TO INTERPROCESSOR INTERRUPT                        1  204
ARM60    GEN,8,24  4,X'60'                                             1  205
         GEN,8,24  X'88',0                                             1  206
         DATA      INTXPSD                                             1  207
ARM62    GEN,8,24  4,X'62'                                             1  208
         GEN,2,30  2,RTNATCB          SAVE 16 REGS                     1  209
         DATA      RTNA                                                1  210
ARM63    GEN,8,24  4,X'63'                                             1  211
         GEN,2,30  2,LEV2TCB          SAVE 16 REGS                     1  212
         DATA      RTNAA                                               1  213
ARM64    GEN,8,24  4,X'64'                                             1  214
         GEN,2,30  2,LEV3TCB          SAVE 16 REGS                     1  215
         DATA      EI3                                                 1  216
ARM68    GEN,8,24  4,X'68'                                             1  217
         GEN,2,30  2,CRTTCB           SAVE 16 REGS                     1  218
         DATA      CLCRT                                               1  219
ARM69    GEN,8,24  4,X'69'                                             1  220
         GEN,2,30  2,LEV5TCB                                           1  221
         DATA      TANSTP                                              1  222
DIS43    GEN,8,24  X'14',C                                             1  223
         GEN,12,20 X'7F8',3                                            1  224
INT60    LPSD,3    INTPR8                                              1  225
INTER8   STW,R1    *REG               SAVE R1                          1  226
         LI,R1     250                RESET CLOCK                      1  227
         STW,R1    CLOCK              RESET CLOCK                      1  228
         LI,R1     X'A000'            TRIGGER INT PROCESSOR, AND EXEC I  1  229
         WD,R1     X'17D2'            TRIGGER INT. 60, 62              1  230
         LW,R1     *REG               RESET R1                         1  231
         LPSD,3    CLK1                                                1  232
STRTA    RES       0                                                   1  233
         CAL1,5    ARM60              CONNECT ANR ARM INT. 60          1  234
         CAL1,5    ARM62              CONNECT ANR ARM INT. 62          1  235
         CAL1,5    ARM63              CONNECT ANR ARM INT. 63          1  236
         CAL1,5    ARM64              CONNECT ANR ARM INT. 64          1  237
         CAL1,5    ARM68              CONNECT ANR ARM INT. 68          1  238
         CAL1,5    ARM69       ARM LEVEL 5 INTERRUPT                   1  239
         CAL1,5    ARM5A              CONNECT ANR ARM INT. 5A          1  240
*     DISABLE ARITHMETIC TRAP ADDRESSES                                1  241
         CAL1,8    DIS43                                               1  242
         CAL1,9    1                                                   1  243
RTNA     RES       0                                                   1  244
         MTW,1     RTC         INCREMENT REAL-TIME CLOCK               1  245
         LI,R11    X'F'             IF 4 LSBS OF RTC ARE ZERO,         1  246
         LS,R11    RTC              DO ONE-HALF SECOND LOGIC,          1  247
         BNEZ      STRDET      ELSE START INPUT OF DATA                1  248
         LI,R10    1                                                   1  249
         STB,R10   ASBF             SET ONE-HALF SECOND FLAG ON       1  250
         STW,R10   ASBF                                                1  251
         LI,R11    X'1F'            IF 5 LSBS OF RTC ARE ZERO,         1  252
         LS,R11    RTC              DO ONE SECOND LOGIC, ELSE          1  253
         BNEZ      STRDET      START INPUT OF DATA                     1  254
         LI,R10    1                                                   1  255
         STB,R10   *SF              SET ONE SECOND FLAG ON,           1  256
         STB,R10   *SBF                                                1  257
         STW,R10   SECF1                                               1  258
         LW,R10    MINCTS                                              1  259
         AI,R10    -1                                                  1  260
         CI,R10    0                                                   1  261
         BG        GOARND                                              1  262
         LI,R10    1                                                   1  263
         STB,R10   MINSF                                               1  264
         STB,R10   SRTNS                                               1  265
         LW,-      LMAST                                               1  266
         STA,1     DUMAST,2                                            1  267
         LW,R11    OPTIME                                              1  268
         MI,R11    60                                                  1  269
         XW,R10    R11                                                 1  270
GOARND   RES       0                                                   1  271
         STW,R10   MINCTS                                              1  272
         LW,2      *MAST                                               1  273
         LW,10     DUMAST,2                                            1  274
         CI,10     0                                                   1  275
         BEZ       G01                                                 1  276
         LI,2      1                                                   1  277
         STA,2     MINSF                                               1  278
G01      LW,2      LMAST                                               1  279
         LW,10     DUMAST,2                                            1  280
         BEZ       G02                                                 1  281
         LI,2      1                                                   1  282
         STA,2     MINSF                                               1  283
G02      RES       0                                                   1  284
         LW,2      HMAST                                               1  285
         LB,10     DUMAST,2                                            1  286
         CI,10     1                                                   1  287
         BNE       G021                                                1  288
         STA,10    MINSF                                               1  289
G021     RES       0                                                   1  290
         LI,R10    1                                                   1  291
         MTW,1     MINCYC15                                            1  292
         LW,R2     *X'02000000'     TOGGLE CPU 1 BIT IN PANEL          1  293
         EOR,R2    CPANOUT          TOGGLE CPU BITS IN CPANOUT         1  294
         STW,R2    CPANOUT          AND PUT PUT                        1  295
         LW,R2     HMAST            SCHEDULE RTN, M EVERY 1 SEC,       1  296
         LI,11     1                                                   1  297
         STW,11    DUMAST,R2                                           1  298
         MTW,=1    QCNT             DECREMENT RTN, Q COUNT             1  299
         BNEZ      G03                                                 1  300
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                LW,R2   QMAST           *D, SHUTDOWN IN PROGRESS        1  301
                LI,R1   1                                               1  302
                STW,R1  DUMAST,2                                        1  303
                LI,2    1                                               1  304
                STW,2   MIN5F                                           1  305
G84             RES     0                                               1  306
                MTW,-1  KCNT            TEST IF 1 MINUTE INTERVAL       1  307


                BGZ     DEC15MIN        NO, TEST 15 MIN FLAG            1  308
                LW,R2   KMAST           SCHEDULE RTN. K                 1  309
                STW,11  DUMAST,2                                        1  310
                STW,11  MIN5F                                           1  311
                STW,R10 CRTFL1          UPDATE CRT 1 DISPLAY            1  312
                STW,R10 CRTFL2          UPDATE CRT 2 DISPLAY            1  313
DEC15MIN        RES     0                                               1  314
                MTW,-1  JCOUNT          DECREMNT 6 SECOND COUNTER FOR RT 1  315
                BGZ     NOEVAL          NOT ZERO, CONTINUE              1  316
                LW,R2   JMAST           6 SEC. UP, SCHEDULE RTN. J      1  317
                STW,11  DUMAST,2                                        1  318
NOEVAL          RES     0                                               1  319
                MTW,-1  SYSTB   DECREMENT STANDBY WAIT COUNTS           1  320
                LW,2    NUMSCT                                          1  321
                MTW,-1  SECSTB-1,2                                      1  322
                BDR,2   $-1                                             1  323
                MTW,-1  FMC     DECREMENT 15 MINUTE COUNTER             1  324
                BGZ     STRDET          IF 15 MIN NOT UP START INPUT    1  325
                LI,R10  0                                               1  326
                STW,R10 MPGKEY          RTN. H SHOULD DO ALL PRINTING   1  327
                STW,R10 MINCYC15                                        1  328
                LW,R2   SMTFLG          TEST IF SHUTDOWN                1  329
                BNEZ    G84                                             1  330
                LW,R2   HMAST           GET RTNH OFFSET IN MAST TABLE   1  331
                LI,11   1                                               1  332
                STW,11  DUMAST,2                                        1  333
                LI,2    1                                               1  334
                STW,2   MIN5F                                           1  335
G84             RES     0                                               1  336
                LI,R10  900     RESET 15 MINUTE COUNTER                 1  337
                STW,R10 FMC             ( 900 = 15MIN. * 60SEC./MIN. )  1  338
                LI,R10  1                                               1  339
                STW,R10 FMSYSF          SET FIFTEEN MINUTE SYSTEM FLAG ON 1 340
                STW,R10 FMSECF          SET FIFTEEN MINUTE SECTION FLAG ON 1 341
                STW,R10 FMMARK                                          1  342
                AW,R10  FMTODC  INCREMENT 15 MIN. TIME OF DAY COUNTER   1  343
                CI,R10  95                                              1  344
                BLE     $+2                                             1  345
                LI,R10  0                                               1  346
                STW,R10 FMTODC                                          1  347
STRDET          RES     0       START INPUT OF DATA                     1  348
                MTW,15  DBP     DECREMENT DETECTOR BUFFER POINTER       1  349
                BGE     FINDL   *DBP = -1                               1  350
                LI,R11  3                                               1  351
                STW,R11 DBP             DBP = 3                         1  352
FINDL           RES     0                                               1  353
                LW,R1   DBP             STARTING ADDRESS OF             1  354
                SLS,R1  1               I/O COMMAND LIST =              1  355
                AW,R1   WHSF            2*DBP + WHSF ==== INDICE        1  356
                SLS,R1  1                                               1  357
                LW,R0   PLIST,R1                                        1  358
                LW,R11  WHSF                                            1  359
                MI,R11  6                                               1  360
                AW,R11  STWAE4                                          1  361
                AW,R11  HD              SET UP TO STORE IN MARR         1  362
                LW,R1D  HOLDMAP                                         1  363
                AI,R10  24                                              1  364
                CI,R10  LASTMAP             TEST IF END OF BUFFER       1  365
                BL      $+2                                             1  366
                LI,R10  MARR                RESET TO BUFFER START       1  367
                STW,R10 HOLDMAP                                         1  368
                SLS,R10 2                                               1  369
                AW,R10  *ORDER7929                                      1  370
                EXU     R11             PERFORM STORE MARR              1  371
                SLS,R0  -1                                              1  372
                TIO,0   7929DEVICE          TEST INPUT                  1  373
                BCR,12  DOSIB               HALT INPUT                  1  374
                HIO,0   7929DEVICE          IF BUSY, ETC.               1  375
DOSIB           RES     0                                               1  376
                SIO,0   7929DEVICE                                      1  377
DORTNB          RES     0                                               1  378
                BAL,RD  RTNB    DR DETECTOR DATA INTERPRETATION         1  379
*                               (RTN B) AND RACE PER VEHICLE (RTN C)    1  380
                LW,R10  WHSF            CHECK IF                        1  381
                CI,R10  0                                               1  382
                CI,R1D  0               HALF SEC.                       1  383
                BE      ABVER           FLAG SET                        1  384
                LI,R10  0                                               1  385
                STW,R10 WHSF            RESET(=0) HALF SEC FLAG         1  386
                LW,R10  LEVL5A                                          1  387
                BNEZ    ABVER1                                          1  388
ABVER2          RES     0                                               1  389
                LW,R10  MIN5F                                           1  390
                CI,R10  0                                               1  391
                BE      ABVER1                                          1  392
ABVER3          RES     0                                               1  393
                LI,R10  X'1840'                                         1  394
                WD,10   X'1702'                                         1  395
                B       ABVER                                           1  396
ABVER1          RES     0                                               1  397
*                                                                       1  398
                LI,10   X'1800'             TRIGGER LEVELS 2 AND 3      1  399
                WD,1D   X'1702'             TRIGGER LEVELS 2 AND 3      1  400
ABVER           RES     0                                               1  401
                END     1                                               1  402
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                PAGE                                                    1  403
ENDACTH         RES     0                                               1  404
                LW,R2   HMAST           GET RTNH BFFSET IN MAST TABLE   1  405
                B       ENDACT                                          1  406
ENDACTI         RES     0                                               1  407
                LW,R2   IMAST                                           1  408
                B       ENDACT                                          1  409
ENDACTM         RES     0                                               1  410
                LW,R2   MMAST           GET RTNH BFFSET IN MAST TABLE   1  411
ENDACT          RES     0                                               1  412
                LI,10   1                                               1  413
                STW,10  DUMAST,2                                        1  414
                STW,10  MINSF                                           1  415
                B       *R11                                            1  416
*               REFERENCE!          I/B END ACTION     REM REF. MAN., PG. 30  1  417
*                                                                       1  418
*                                                                       1  419
*               EX!     ENDACTH WBULD BE THE END.ACTION ADDRESS APPEARING IN  1  420
*               THE DEVICE USER'S FPT. RETURN TB CBMPLETE THE I/B INTERRUPT   1  421
*               RESPBNSE HANDLING TASK IS VIA REGISTER 11.              1  422
*                                                                       1  423
*                                                                       1  424
*               NB!       END.ACTION IS PERFBRMED WITH THE I/B INTERRUPT HIGH  1  425
*               --------- AS PART BF THE I/B INTERRUPT RESPBNSE TASK.    1  426
                PAGE                                                    1  427
*                                       EXTERNAL INTERRUPT 3 L8GIC      1  428
EI3             RES     0                                               1  429
L88PEI3A        RES     0                                               1  430
                LI,2    *4                                              1  431


L88PEI3B        RES     0                                               1  432
                LW,10   DUMAST+4,2                                      1  433
                CI,10   1                                               1  434
                BNE     $SERV                                           1  435
                LW,10   MAST+4,2                                        1  436
                LI,13   0                                               1  437
                STW,13  DUMAST+4,2                                      1  438
                B       FBRC                                            1  439
$SERV           BIR,R2  L88PEI3B        KEEP G8ING                      1  440
                B       EXITEI3     ALL ACTIVITY BFF AT LEAST BNCE THRU 1  441
FBRC            LCI     0                                               1  442
                STM,0   SAVR16                                          1  443
                LW,R0   SAVR0                                           1  444
                LI,R14  0                                               1  445
                BAL,R15 *R10                                            1  446
                LCI     0                                               1  447
                LM,0    SAVR16                                          1  448
                B       L88PEI3A        START SCAN FR8M HIGHEST PRI9RITY  1  449
EXITEI3         RES     0                                               1  450
                CAL1,9  1                                               1  451
TAKSTP          RES     0                                               1  452
                LW,R0   SAVR0                                           1  453
                LI,R14  0                                               1  454
                BAL,R15 RTNA5                                           1  455
                CAL1,9  1                                               1  456
CLCRT           LI,R14  0                                               1  457
                LW,R0   SAVR0                                           1  458
                BAL,R15 CRT8UT                                          1  459
                CAL1,9  1                                               1  460
RTNAX           RES     0                                               1  461
                LW,R10  SECF1                                           1  462
                CI,R10  1                                               1  463
                BNE     LEV2N8                                          1  464
                LI,R10  0                                               1  465
                STW,R10 SECF1                                           1  466
                LI,R14  0                                               1  467
                LW,R0   SAVR0                                           1  468
                BAL,R15 RTNA1                                           1  469
LEV2N8          RES     0                                               1  470
                CAL1,9  1                                               1  471
SAVR16          RES     16                                              1  472
*                                                                       1  473
*                                                                       1  474
*     VEHICLE DETECT8R INPUT ARRAY 1                                    1  475
                B8UND   8                                               1  476
P1              RES     0                                               1  477
                GEN,20,4,4,4,32     X'80C1',X'1',X'7',X'F',X'FFFFFFFF'  1  478
                GEN,20,4,4,4,32     X'80C1',X'0',X'8',X'F',X'FFFFFFFF'  1  479
                GEN,20,4,4,4,32     X'80C1',X'1',X'8',X'F',X'FFFFFFFF'  1  480
                GEN,20,4,4,4,32     X'80C1',X'0',X'9',X'F',X'FFFFFFFF'  1  481
                GEN,20,4,4,4,32     X'80C1',X'1',X'9',X'F',X'FFFFFFFF'  1  482
                GEN,20,4,4,4,32     X'80C1',X'0',X'A',X'F',X'FFFFFFFF'  1  483
                GEN,20,4,4,4,32     X'80C1',X'1',X'A',X'F',X'FFFFFFFF'  1  484
                GEN,20,4,4,4,32     X'80C1',X'0',X'B',X'F',X'FFFFFFFF'  1  485
                GEN,20,4,4,4,32     X'80C1',X'1',X'B',X'F',X'FFFFFFFF'  1  486
                GEN,20,4,4,4,32     X'80C1',X'0',X'C',X'F',X'FFFFFFFF'  1  487
                GEN,20,4,4,4,32     X'80C1',X'1',X'C',X'F',X'FFFFFFFF'  1  488
                GEN,20,4,4,4,32     X'80C1',X'0',X'0',X'F',X'FFFFFFFF'  1  489
                GEN,20,4,4,4,32     X'80C1',X'1',X'0',X'F',X'FFFFFFFF'  1  490
                GEN,20,4,4,4,32     X'80C1',X'0',X'E',X'F',X'FFFFFFFF'  1  491
                GEN,20,4,4,4,32     X'80C1',X'1',X'E',X'F',X'FFFFFFFF'  1  492
                GEN,20,4,4,4,32     X'80C1',X'2',X'0',X'F',X'FFFFFFFF'  1  493
                GEN,20,4,4,4,32     X'80C1',X'3',X'0',X'F',X'FFFFFFFF'  1  494
               GEN,20,4,4,4,32  X'80C1',X'4',X'0',X'F',X'FFFFFFFF'      1  495
               GEN,20,4,4,4,32  X'80C1',X'5',X'0',X'F',X'FFFFFFFF'      1  496
P1END           EQU     $                                               1  497
P1BYTE          EQU     4*(8*P1)                                        1  498
P1LNGTH         EQU     $-P1                                            1  499
*                                                                       1  500
*                                                                       1  501
*     VEHICLE DETECTBR INPUT ARRAY 2                                    1  502
                B8UND   8                                               1  503
P2              RES     0                                               1  504
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          GEN,20,4,4,4,32     X'80C',X'11',X'7',X'F',X'FFFFFFFF'          1  505
          GEN,20,4,4,4,32     X'80C',X'10',X'8',X'F',X'FFFFFFFF'          1  506
          GEN,20,4,4,4,32     X'80C',X'11',X'8',X'F',X'FFFFFFFF'          1  507
          GEN,20,4,4,4,32     X'80C',X'10',X'9',X'F',X'FFFFFFFF'          1  508
          GEN,20,4,4,4,32     X'80C',X'11',X'9',X'F',X'FFFFFFFF'          1  509
          GEN,20,4,4,4,32     X'80C',X'10',X'A',X'F',X'FFFFFFFF'          1  510
          GEN,20,4,4,4,32     X'80C',X'11',X'A',X'F',X'FFFFFFFF'          1  511
          GEN,20,4,4,4,32     X'80C',X'10',X'B',X'F',X'FFFFFFFF'          1  512
          GEN,20,4,4,4,32     X'80C',X'11',X'B',X'F',X'FFFFFFFF'          1  513
          GEN,20,4,4,4,32     X'80C',X'10',X'C',X'F',X'FFFFFFFF'          1  514
          GEN,20,4,4,4,32     X'80C',X'11',X'C',X'F',X'FFFFFFFF'          1  515
          GEN,20,4,4,4,32     X'80C',X'10',X'D',X'F',X'FFFFFFFF'          1  516
          GEN,20,4,4,4,32     X'80C',X'11',X'D',X'F',X'FFFFFFFF'          1  517
          GEN,20,4,4,4,32     X'80C',X'10',X'E',X'F',X'FFFFFFFF'          1  518
          GEN,20,4,4,4,32     X'80C',X'11',X'E',X'F',X'FFFFFFFF'          1  519
          GEN,20,4,4,4,32     X'80C',X'12',X'0',X'F',X'FFFFFFFF'          1  520
          GEN,20,4,4,4,32     X'80C',X'13',X'0',X'F',X'FFFFFFFF'          1  521
        GEN,20,4,4,4,32  X'80C',X'14',X'0',X'F',X'FFFFFFFF'               1  522
        GEN,20,4,4,4,32  X'80C',X'15',X'0',X'F',X'FFFFFFFF'               1  523
P2END   EQU     *                                                         1  524
P2BYTE  EQU     4*(*-P2)                                                  1  525
*                                                                         1  526
*                                                                         1  527
*    VEHICLE DETECTOR INPUT ARRAY 3                                       1  528
        BOUND   8                                                         1  529
P3      RES     0                                                         1  530
          GEN,20,4,4,4,32     X'80C',X'11',X'7',X'F',X'FFFFFFFF'          1  531
          GEN,20,4,4,4,32     X'80C',X'10',X'8',X'F',X'FFFFFFFF'          1  532
          GEN,20,4,4,4,32     X'80C',X'11',X'8',X'F',X'FFFFFFFF'          1  533
          GEN,20,4,4,4,32     X'80C',X'10',X'9',X'F',X'FFFFFFFF'          1  534
          GEN,20,4,4,4,32     X'80C',X'11',X'9',X'F',X'FFFFFFFF'          1  535
          GEN,20,4,4,4,32     X'80C',X'10',X'A',X'F',X'FFFFFFFF'          1  536
          GEN,20,4,4,4,32     X'80C',X'11',X'A',X'F',X'FFFFFFFF'          1  537
          GEN,20,4,4,4,32     X'80C',X'10',X'B',X'F',X'FFFFFFFF'          1  538
          GEN,20,4,4,4,32     X'80C',X'11',X'B',X'F',X'FFFFFFFF'          1  539
          GEN,20,4,4,4,32     X'80C',X'10',X'C',X'F',X'FFFFFFFF'          1  540
          GEN,20,4,4,4,32     X'80C',X'11',X'C',X'F',X'FFFFFFFF'          1  541
          GEN,20,4,4,4,32     X'80C',X'10',X'D',X'F',X'FFFFFFFF'          1  542
          GEN,20,4,4,4,32     X'80C',X'11',X'D',X'F',X'FFFFFFFF'          1  543
          GEN,20,4,4,4,32     X'80C',X'10',X'E',X'F',X'FFFFFFFF'          1  544
          GEN,20,4,4,4,32     X'80C',X'11',X'E',X'F',X'FFFFFFFF'          1  545
          GEN,20,4,4,4,32     X'80C',X'12',X'0',X'F',X'FFFFFFFF'          1  546
          GEN,20,4,4,4,32     X'80C',X'13',X'0',X'F',X'FFFFFFFF'          1  547
        GEN,20,4,4,4,32  X'80C',X'14',X'0',X'F',X'FFFFFFFF'               1  548
        GEN,20,4,4,4,32  X'80C',X'15',X'0',X'F',X'FFFFFFFF'               1  549
P3END   EQU     *                                                         1  550
P3BYTE  EQU     4*(*-P3)                                                  1  551
*                                                                         1  552
*                                                                         1  553
*    VEHICLE DETECTOR INPUT ARRAY 4                                       1  554
        BOUND   8                                                         1  555
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        RES                                                               1  556
          GEN,20,4,4,4,32     X'80C',X'11',X'7',X'F',X'FFFFFFFF'          1  557
          GEN,20,4,4,4,32     X'80C',X'10',X'8',X'F',X'FFFFFFFF'          1  558
          GEN,20,4,4,4,32     X'80C',X'11',X'8',X'F',X'FFFFFFFF'          1  559
          GEN,20,4,4,4,32     X'80C',X'10',X'9',X'F',X'FFFFFFFF'          1  560
          GEN,20,4,4,4,32     X'80C',X'11',X'9',X'F',X'FFFFFFFF'          1  561
          GEN,20,4,4,4,32     X'80C',X'10',X'A',X'F',X'FFFFFFFF'          1  562
          GEN,20,4,4,4,32     X'80C',X'11',X'A',X'F',X'FFFFFFFF'          1  563
          GEN,20,4,4,4,32     X'80C',X'10',X'B',X'F',X'FFFFFFFF'          1  564
          GEN,20,4,4,4,32     X'80C',X'11',X'B',X'F',X'FFFFFFFF'          1  565
          GEN,20,4,4,4,32     X'80C',X'10',X'C',X'F',X'FFFFFFFF'          1  566
          GEN,20,4,4,4,32     X'80C',X'11',X'C',X'F',X'FFFFFFFF'          1  567
          GEN,20,4,4,4,32     X'80C',X'10',X'D',X'F',X'FFFFFFFF'          1  568
          GEN,20,4,4,4,32     X'80C',X'11',X'D',X'F',X'FFFFFFFF'          1  569
          GEN,20,4,4,4,32     X'80C',X'10',X'E',X'F',X'FFFFFFFF'          1  570
          GEN,20,4,4,4,32     X'80C',X'11',X'E',X'F',X'FFFFFFFF'          1  571
          GEN,20,4,4,4,32     X'80C',X'12',X'0',X'F',X'FFFFFFFF'          1  572
          GEN,20,4,4,4,32     X'80C',X'13',X'0',X'F',X'FFFFFFFF'          1  573
        GEN,20,4,4,4,32  X'80C',X'14',X'0',X'F',X'FFFFFFFF'               1  574
        GEN,20,4,4,4,32  X'80C',X'15',X'0',X'F',X'FFFFFFFF'               1  575
P4END   EQU     *                                                         1  576
P4BYTE  EQU     4*(*-P4)                                                  1  577
BLK29   OSECT   0                                                         1  578
        BOUND   4                                                         1  579
SYSTB   DATA    0                                                         1  580
SECSTB  DATA    0,0,0,0                                                   1  581
BLK28   OSECT   0                                                         1  582
        BOUND   8                                                         1  583
HSARR   RES             0               HALF-SECOND ARRAY                 1  584
*    A-PHASE GREEN RETURN ARRAY                                           1  585
AGR     RES     0                                                         1  586
          GEN,20,4,4,4,32     X'80C',X'12',X'1',X'F',X'FFFFFFFF'          1  587
          GEN,20,4,4,4,32     X'80C',X'13',X'1',X'F',X'FFFFFFFF'          1  588
          GEN,20,4,4,4,32     X'80C',X'12',X'2',X'F',X'FFFFFFFF'          1  589
          GEN,20,4,4,4,32     X'80C',X'13',X'2',X'F',X'FFFFFFFF'          1  590
        GEN,20,4,4,4,32  X'80C',X'15',X'2',X'F',X'FFFFFFFF'               1  591
        GEN,20,4,4,4,32  X'80C',X'14',X'3',X'F',X'FFFFFFFF'               1  592
        GEN,20,4,4,4,32  X'80C',X'15',X'3',X'F',X'FFFFFFFF'               1  593
*    PANAL INPUT DATA ARRAY                                               1  594
PIA     RES     0                                                         1  595
CPANIN  EQU     PIA+1                                                     1  596
          GEN,20,4,4,4,32     X'80C',X'12',X'3',X'F',X'FFFFFFFF'          1  597
          GEN,20,4,4,4,32     X'80C',X'13',X'3',X'F',X'FFFFFFFF'          1  598
          GEN,20,4,4,4,32     X'80C',X'12',X'4',X'F',X'FFFFFFFF'          1  599
*    RADIO-CONTROLLED MONITOR SIGNAL ARRAY                                1  600
RCM     RES     0                                                         1  601
        GEN,20,4,4,4,32    X'80C',X'13',X'4',X'F',X'FFFF0000'             1  602
*    HOLD SIGNAL OUTPUT ARRAY                                             1  603
HSO     RES     0                                                         1  604
          GEN,20,4,4,4,32     X'00C',X'12',X'7',X'F',0                    1  605
          GEN,20,4,4,4,32     X'00C',X'12',X'8',X'F',0                    1  606
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          GEN,20,4,4,4,32     X'00C',X'2',X'9',X'F',0                  1  607
          GEN,20,4,4,4,32     X'00C',X'2',X'A',X'F',0                  1  608
          GEN,20,4,4,4,32  X'00C',X'4',X'5',X'F',X'0'                  1  609
          GEN,20,4,4,4,32  X'00C',X'4',X'6',X'F',X'0'                  1  610
          GEN,20,4,4,4,32  X'00C',X'4',X'7',X'F',X'0'                  1  611
HSARRBYTE EQU       4*($-HSARR)                                        1  612
*    ADVANCE PULSE OUTPUT ARRAY                                        1  613
APBM1     RES       0                                                  1  614
          GEN,20,4,4,4,32     X'00C',X'2',X'B',X'F',0                  1  615
          GEN,20,4,4,4,32     X'00C',X'2',X'C',X'F',0                  1  616
          GEN,20,4,4,4,32     X'00C',X'2',X'D',X'F',0                  1  617
          GEN,20,4,4,4,32     X'00C',X'2',X'E',X'F',0                  1  618
          GEN,20,4,4,4,32  X'00C',X'4',X'A',X'F',X'0'                  1  619
          GEN,20,4,4,4,32  X'00C',X'4',X'B',X'F',X'0'                  1  620
          GEN,20,4,4,4,32  X'00C',X'4',X'C',X'F',X'0'                  1  621
APBBYTE   EQU       4*($-APBM1)                                        1  622
*    PANAL OUTPUT DATA ARRAY                                           1  623
CPANBU    RES       0                                                  1  624
CPANBLT   EQU       CPANBU+1                                           1  625
          DATA      X'0000C25C'                                        1  626
          DATA      X'02000000'                                        1  627
CPABYTE   EQU       4*(8-CPANBU)                                       1  628
GA1       EQU       AGR+1              LABEL USED BY RTN 9             1  629
PIA1      EQU       PIA+1              LABEL USED BY RTN A             1  630
RMCSP     EQU       RCM+1                                              1  631
HBLD      EQU       HSB+1              LABEL USED BY RTNS. P,R,T,V,A1  1  632
APB       EQU       ARBM1+1            LABEL USED BY RTNS. P,T         1  633
*                                                                      1  634
*    MAR SIGNAL OUTPUT ARRAY                                           1  635
          BBOND     5                                                  1  636
MARR      EQU       5                                                  1  637
*         COMMUNICATIONS AND INTERSECTION SWITCHES                     1  638
*                                                                      1  639
          MAP       01,02,00,02              ENABLE/INHIBIT            1  640
*                                               COMMUNICATIONS         1  641
*                                            ENABLE/DISABLE            1  642
*                                             INTERSECTION SIGNALS     1  643
*                                                                      1  644
*         LEGEND DISPLAY                                               1  645
*                                                                      1  646
          MAP       09,00,10,00,11,00,12,00  1 (CONTROLLER STATUS)     1  647
*                                             2 (CIC STATUS)           1  648
*                                             3 (BRS CONTROLLER STATUS)1  649
*                                             4 (CONTROLLERS FAILED)   1  650
          MAP       01,00,02,00,03,00,04,00  5 (OCCUPANCY)            1  651
*                                             6 (VOLUME)               1  652
*                                             7 (SPEED)                1  653
*                                             8 (QUEUE)                1  654
          MAP       05,00,06,00,07,00,08,00  9 (STOPS)                1  655
*                                             10 (DELAY)               1  656
*                                             11 (PASSENGER GAIN)      1  657
*                                             12 (BUSES DELAYED)       1  658
          MAP       13,00,14,00              13 (SURV EQUIP FAILED)   1  659
*                                             14 (BRS SURV EQUIP FAILED)1 660
*                                                                      1  661
*         THRESHOLD DIGITS                                             1  662
*                                                                      1  663
          MAP       03,01,02,01,01,01,00,01  * 1000S DIGIT (8-4-2-1 BITS)1 664
          MAP       07,01,06,01,05,01,04,01  * 100S DIGIT (8-4-2-1 BITS)1 665
          MAP       11,01,10,01,09,01,08,01  * 10S DIGIT (8-4-2-1 BITS) 1 666
          MAP       15,01,14,01,13,01,12,01  * 1S DIGIT (8-4-2-1 BITS)  1 667
*                                                                      1  668
*        ADDED TO TURN ON A PHASE GREEN LETTERS OF MAR                 1  669
          MAR       15,0,0,0,0,0,0           1                        1  670
*         THE FOLLOWING DUMMY ENTRIES PROVICE FOR EXPANSION TO         1  671
*          48 CONTROLS                                                 1  672
*                                                                      1  673
          091       3                                                  1  674
            MAP       00,00,00,00,00,00,00,00                        1  675
*                                                                      1  676
*         CONTROLLER ARRAYS (ODD AND EVEN SIGNAL PAIR PER ADDRESS)     1  677
*                                                                      1  678
          MAP       00,00,01,00,02,00,03,00  * 1 - 8                 1  679
          MAP       04,02,04,02,05,02,06,02  * 9 - 16                1  680
          MAP       07,02,08,02,09,02,0A,02  * 17 - 24               1  681
          MAP       0B,05,0C,05,0D,05,10,02  * 25 - 32               1  682
          MAP       11,02,12,02,13,02,14,02  * 33 - 40               1  683
          MAP       15,0C,09,05,10,05,11,05  * 41 - 48               1  684
          MAP       12,05,13,05,00,0,14,05   * 49 - 56               1  685
          MAP       15,05,00,06,01,06,02,06  * 57 - 64               1  686
          MAP       01,03,02,03,03,06,03,03  * 65 - 72               1  687
          MAR       04,06,04,03,05,06,C0,00  *  73-80                1  688
          MAP       07,06,08,06,09,06,10,06  * 81 - 88               1  689
          MAR       11,06,05,03,12,06,13,06  * 89 - 96               1  690
          MAR       14,06,15,06,00,00,01,07  *  97-104              1  691
          MAP       02,07,0C,00,04,07,05,07  * 105-112               1  692
          MAP       06,07,07,07,07,03,08,03  * 113 - 120             1  693
          MAP       06,03,09,03              * 121 - 124             1  694
*                                                                      1  695
*         THE FOLLOWING DUMMY ENTRIES PROVIDE FOR EXPANSION TO         1  696
*          232 CONTROLLERS                                             1  697
*                                                                      1  698
          MAP       00,00,00,00                                      1  699
          081       13                                               1  700
          MAR       00,00,00,00,00,00,00,00                          1  701
*                                                                      1  702
*         LINK ARROWS (ODD AND EVEN PAIR PER ADDRESS)                  1  703
*                                                                      1  704
          MAP       00,17,01,17,02,17,09,16  * 1 - 8                 1  705
          MAP       00,16,01,16,02,16,08,16  * 9 - 16                1  706
          MAP       11,16,03,16,04,16,10,16  * 17 - 24               1  707
          MAP       12,16,14,16,05,16,06,16  * 25 - 32               1  708
```

```
                MAP       13,16,07,16,15,16,04,17 , 33 , 40                    1  709
                MAP       03,17,09,17,10,17,05,17 , 41 , 48                    1  710
                MAP       06,17,08,17,12,17,13,17 , 49 , 56                    1  711
                MAP       07,17,11,17,03,19,05,19 , 57 , 64                    1  712
                MAP       04,19,06,19,07,19,08,19 , 65 , 72                    1  713
                MAP       12,19,11,19,13,19,15,19 , 73 , 80                    1  714
                MAP       00,20,01,20,02,20,09,20 , 81 , 88                    1  715
                MAP       03,20,08,20,10,20,04,20 , 89 , 96                    1  716
                MAP       06,20,05,20,13,20,12,20 , 97 , 104                   1  717
                MAP       07,20,11,20,15,20,14,20 , 105 , 112                  1  718
                MAP       00,21,01,21,02,21,03,21 , 113 , 120                  1  719
                MAP      00,00,07,21,12,21,15,21  ,  121 , 128                 1  720
                MAP       14,21,01,22,08,22,02,22 , 129 , 136                  1  721
                MAP       03,22,10,22,04,22,05,22 , 137 , 144                  1  722
                MAP       09,22,12,22,06,22,07,22 , 145 , 152                  1  723
                MAP       11,22,13,22,14,22,15,22 , 153 , 160                  1  724
                MAP       09,23,00,23,02,23,01,23 , 161 , 168                  1  725
                MAP       08,23,11,23,03,23,04,23 , 169 , 176                  1  726
                MAP       10,23,15,17,14,17,00,18 , 177 , 184                  1  727
                MAP       08,18,01,18,02,18,10,18 , 185 , 192                  1  728
                MAP       03,18,04,18,09,18,11,18 , 193 , 200                  1  729
                MAP       05,18,12,18,14,18,13,18 , 201 , 208                  1  730
                MAP       15,18,06,18,07,18,00,19 , 209 , 216                  1  731
                MAP       01,19,02,19,09,19,10,19 , 217 , 224                  1  732
                MAP       12,23,05,23,06,23,07,23 , 225 , 232                  1  733
              MAP        13,23,14,19,14,23,00,00  , 233,240                     1  734
              MAP        04,21,08,21,00,00,05,21  , 241,248                     1  735
                MAP       10,21,06,21,00,22,15,23 , 249 , 256                  1  736
              MAP        09,21,11,21,13,21,00,00  , 257,264                     1  737
*                                                                               1  738
*         THE FOLLOWING DUMMY ENTRIES PROVIDE FOR EXPANSION TO                  1  739
*          512 LINKS                                                            1  740
*                                                                               1  741
                DB1       31                                                    1  742
                MAP       00,00,00,00,00,00,00,00                               1  743
              LIST        1                                                     1  744
LASTMAP       EQU         *-21                                                  1  745
MARRBYTE      EQU         14*2*4                                                1  746
MARR1         EQU          MARR+1                                               1  747
MSLOMAP       DATA         MARR                                                 1  748
              BBUMP       8                                                     1  749
UCBUNT        DATA        6                                                     1  750
KCNT          DATA        15                    15SEC. COUNTER FOR RTNK         1  751
MINCYC15      DATA        0                                                     1  752
MSBF          DATA        0                                                     1  753
CLOCK         DATA        250                                                   1  754
MINF          DATA        0                                                     1  755
 INCT1        DATA        60                                                    1  756
TAB            DATA        ENDACTM,ENDACT1,ENDACTA                              1  757
MB            EQU         MSARRBYTE/4                                           1  758
AB            EQU         APBBYTE/4                                             1  759
CB            EQU         CPABYTE/4                                             1  760
MB            EQU         MARRBYTE/4                                            1  761
PB            EQU         P1BYTE/4                                              1  762
MAST          DATA        RTNM,RTNJ,RTNK,RTNE                                   1  763
            DATA  0,0,0,0                                                       1  764
              DATA        RTNL                                                  1  765
RTNL          RES         1                                                     1  766
SECF1         RES         1                                                     1  767
BLK4          DSECT       0                                                     1  768
              RES         1152                                                  1  769
NL            DATA        254                                                   1  770
BLK6          DSECT       0                                                     1  771
FMC           DATA        900                                                   1  772
FMMARK        DATA        0                                                     1  773
DUMAST         DATA        0,0,0,0,0,0,0,0                                      1  774
               DATA        1,2,3,4,5,6,7,8,9                                    1  775
MPSKEY         DATA        0                                                    1  776
JCNT           DATA        -1                                                   1  777
CPFLG          DATA        0                                                    1  778
MMAST         DATA        0                                                     1  779
JMAST         DATA        1                                                     1  780
KMAST         DATA        2                                                     1  781
EMAST         DATA        3                                                     1  782
HMAST         DATA        4                                                     1  783
NMAST         DATA        5                                                     1  784
LMAST         DATA        6                                                     1  785
IMAST         DATA        7                                                     1  786
OMAST          DATA        8                                                    1  787
BLKLV5        DSECT       0                                                     1  788
LEVL5A        DATA        0                                                     1  789
SRTNS         DATA        0                                                     1  790
ENDS          DATA        0                                                     1  791
ENDSA         DATA        0                                                     1  792
INCT5         DATA        0                                                     1  793
MINSF         DATA        0                                                     1  794
BPTIME         DATA        5                                                    1  795
MPTIN         DATA        0                                                     1  796
              END                                                               1  797
```

2.6.2 SUBROUTINE A5

```
ROUTINE: RTNA5    LEVEL 5 EXEC

C   *   RTNA5    LEVEL 5 EXEC                                                  63    1
      SUBROUTINE RTNA5                                                        63    2
      COMMON /BLKLV5/ LEVL5A,SRTN5,END5,END51,NINCT5,MIN5F,SPTIME,SPTIN       63    3
      INTEGER SRTN5,END5,END51,SPTIME,SPTIN                                   63    4
      COMMON /BLK5 /  FMC         ,  FMARK       ,  MAST(9)     ,           63    5
     * AMAST        ,  BMAST       ,  CMAST       ,  DMAST       ,           63    6
     * EMAST        ,  FMAST       ,  GMAST       ,  HMAST       ,           63    7
     * LMAST        ,  MPGRY       ,  GCNT                                   63    8
C     DUMMY COMMON AREAS FOR INITIALIZATION OF OVERLAYS                       63    9
      COMMON /HSUB4/ IDUM(4)                                                  63   10
      COMMON /HSUB1/ ITIME(4)                                                 63   11
      COMMON /ITRSP/ IRDUM(4)                                                 63   12
      COMMON /PTNCHM/ IPTNO(4)                                                63   13
      COMMON /BLTMT/ ADUMM(9)                                                 63   14
      COMMON /HSUB2/ JDUM(222)                                                63   15
      COMMON /HSUB3/ KDUM(2)                                                  63   16
      COMMON /HSUB5/ IIDUM(4)                                                 63   17
      COMMON /HSUB6/ JJDUM(5)                                                 63   18
      COMMON /DSUM1/ IDUMM                                                    63   19
      COMMON /ISUB1/ KKDUM(3)                                                 63   20
      COMMON /C811/ LPBPT                                                     63   21
C                                                                             63   22
      COMMON /SECTIN/ ISECT(8)                                                63   23
      INTEGER HMAST,AMAST,ZMAST                                               63   24
      LEVL5A=1                                                                63   25
    5 CONTINUE                                                                63   26
      IRT = 0                                                                 63   27
      DO 10  I = 1, 5                                                         63   28
      N=I                                                                     63   29
      IF(MAST(I+4).NE.0) GO TO 15                                             63   30
   10 CONTINUE                                                                63   31
      LEVL5A=0                                                                63   32
      MIN5F=0                                                                 63   33
  100 RETURN                                                                  63   34
   15 CONTINUE                                                                63   35
      IF(MAST(N+4).EQ.2) GO TO 15                                             63   36
      IF(MAST(N+4).EQ.3) GO TO 5                                              63   37
      IF( IRT .EQ. N)  GO TO (25,35,45,55,65),N                               63   38
      IRT = N                                                                 63   39
      GO TO (20,30,40,50,60),N                                                63   40
C     RTN1 CALL                                                               63   41
   20 CALL SEGLB0(5)                                                          63   42
   25 CONTINUE                                                                63   43
      MAST(NMAST) = 1                                                         63   44
      CALL RTN1                                                               63   45
      GO TO 15                                                                63   46
C     RTN2 CALL                                                               63   47
   30 CALL SEGLB0(6)                                                          63   48
   35 CONTINUE                                                                63   49
      MAST(NMAST) = 2                                                         63   50
      CALL RTN2                                                               63   51
      GO TO 15                                                                63   52
C     RTN3 CALL                                                               63   53
   40 CALL SEGLB0(7)                                                          63   54
   45 CONTINUE                                                                63   55
      MAST(NMAST) = 3                                                         63   56
      CALL RTN3                                                               63   57
      GO TO 15                                                                63   58
C     RTN4 CALL                                                               63   59


   50 CALL SEGLB0(8)                                                          63   60
   55 CONTINUE                                                                63   61
      MAST(NMAST) = 4                                                         63   62
      CALL RTN4                                                               63   63
      GO TO 15                                                                63   64
C     MACRO LOOP CALL                                                         63   65
   60 CONTINUE                                                                63   66
      CALL MACRO                                                              63   67
      MAST(LMAST)=0                                                           63   68
      IRT=0                                                                   63   69
      GO TO 5                                                                 63   70
      END                                                                     63   71
```

2.6.3 SUBROUTINE CHECK (A, B)

```
ROUTINE: CHECK

*  *  CHECK                                                    11    1
*       DEF     CHECK$                                        11    2
*     DELETE FOR DEBUG RTNK                                   11    3
        REF     STATE                                         11    4
CHECK$  RES     0                                             11    5
        ST,7    SAV7            SAVE R7                       11    6
        LW,7    *15             ADDRESS OF LINE               11    7
        LW,14   0,7             VALUE IN LINE                 11    8
        AI,7    -1                                            11    9
        LB,14   STATE,7         STATUS OF LINE                11   10
        AI,15   2                                             11   11
        LW,7    *15             ADDR. OF CALLER'S STATE       11   12
        ST,14   0,7             STATUS TO USER'S STATE        11   13
        AI,15   2                                             11   14
        LW,7    SAV7            RESTORE 7                     11   15
        B       *15                                           11   16
SAV7    DATA    0                                             11   17
        END                                                   11   18
```

2.6.4 SUBROUTINE CRTOUT

```
ROUTINE:  CRTOUT

C     *   CRTOUT                                                          43    1
      SUBROUTINE CRTOUT                                                   43    2
C                                                                         43    3
C        SUBROUTINE CRT PROVIDES THE INTERFACE BETWEEN THE CRT            43    4
C        FORMATTING ROUTINE (RTNK) AND THE CRT DEVICE                     43    5
C                                                                         43    6
      INTEGER ALLON, STATS, STATE, CRTR2, CRTNM, CRTA1, CRTA2, BYTCT      43    7
      INTEGER CRTB1,CRTB2                                                 43    8
C                                                                         43    9
      DIMENSION NCRT(2)                                                   43   10
      COMMON /KCRT /  BYTCT(2)    ,  CRTR2(2) ,  CRTNM  ,  CRTA1  ,       43   11
     * CRTA2                                                             43   12
      COMMON /BLK22/  CRTB1(512)  ,  CRTB2(512)  ,  CRTD1       ,        43   13
     * CRTD2       ,  CRTF1       ,  CRTF2       ,  FLRFL                43   14
      DATA IFLAG/ 0/                                                      43   15
      DATA ALLON/ 0/                                                      43   16
      DATA STATS/  0/                                                     43   17
      DATA MODE / 19/                                                     43   18
      DATA NOCHG/260/                                                     43   19
      DATA CRTR2(1), CRTR2(2) /  0, 0/                                    43   20
      DATA BYTCT(1), BYTCT(2)/  0, 0/                                     43   21
      DATA  NCRT(1),  NCRT(2) /  2, 1/                                    43   22
C                                                                         43   23
C        FIND INDEX FOR DESIRED CRT DEVICE                                43   24
C                                                                         43   25
      ICRT = CRTNM + 1                                                    43   26
   10 CONTINUE                                                            43   27
      IF(IFLAG.GT.0) GO TO 20                                             43   28
      IFLAG = IFLAG + 1                                                   43   29
      CALL CSET(NCRT(ICRT),MODE,NOCHG)                                    43   30
      CALL CSTART(NCRT(ICRT),STATS)                                       43   31
C                                                                         43   32
C        CHECK IF DEVICE IN ERROR STATE                                   43   33
C                                                                         43   34
      CALL CHECK(NCRT(ICRT),M,STATE,IBC)                                  43   35
      IERR = 0                                                            43   36
      IF(STATE.EQ.128) IERR = 1                                           43   37
      CRTR2(ICRT) = IERR                                                  43   38
   20 CONTINUE                                                            43   39
      IF(CRTR2(ICRT).NE.0) GO TO 40                                       43   40
C                                                                         43   41
C        LINE IS CLEAR, WRITE TO DESIRED CRT                              43   42
C                                                                         43   43
      STATS = 0                                                           43   44
      IF(ICRT.EQ.1) GO TO 30                                              43   45
      CALL CWRITE(NCRT(ICRT),CRTB1,ALLON,BYTCT(ICRT),STATS)               43   46
      GO TO 40                                                            43   47
   30 CONTINUE                                                            43   48
      CALL CWRITE(NCRT(ICRT),CRTB2,ALLON,BYTCT(ICRT),STATS)               43   49
   40 CONTINUE                                                            43   50
C                                                                         43   51
C        CLEAR CRT ACTIVE FLAG AND TEST IF OTHER CRT DESIRED              43   52
C                                                                         43   53
      IF(ICRT.EQ.1) GO TO 50                                              43   54
C                                                                         43   55
C        CRT 1 OPERATION, SET CRT 1 INACTIVE AND CHECK CRT 2              43   56
C                                                                         43   57
      ICRT = 1                                                            43   58
      CRTA1 = 0                                                           43   59
      IF(CRTA2.NE.0) GO TO 10                                             43   60
      GO TO 60                                                            43   61
C                                                                         43   62
C        CRT 2 OPERATION, SET CRT 2 INACTIVE AND CHECK CRT 1              43   63
C                                                                         43   64
   50 CONTINUE                                                            43   65
      ICRT = 2                                                            43   66
      CRTA2 = 0                                                           43   67
      IF(CRTA1.NE.0) GO TO 10                                             43   68
   60 CONTINUE                                                            43   69
C                                                                         43   70
C        RETURN TO MONITOR                                                43   71
C                                                                         43   72
C     CALL EXIT                                                           43   73
      RETURN                                                              43   74
      END                                                                 43   75
```

2.6.5 ROUTINE A1

```
ROUTINE:  RTNA1

C   *   RTNA1                                                                  4    1
      SUBROUTINE RTNA1                                                         4    2
      COMMON /BLK4/ BUT(900)                                                   4    3
      COMMON /BLK6 / FMC          , FMARK       , MAST(9)     ,              4    4
     * MMAST        , JMAST       , KMAST       , EMAST       ,              4    5
     * HMAST        , WMAST       , QMAST       , IMAST       ,              4    6
     * SPACE          , MPBKY                                                 4    7
      COMMON /BLK7 /ABGI(16)     , INTMI(31)   , INT2I(31)   ,               4    8
     * KCTC(17),K3PHI(31),STUPF,NQL(31)                                       4    9
      COMMON /BLK14/ CLENG        , DTLNG       , CMLNG       ,              4   10
     * DUMY1         , DUMY2,                                                4   11
     * CNTLI(372), ENTFL(5), KCL(17), KCTF(17),                              4   12
     * KCSF(17), NMVAI(31), SMSKI(8),                                        4   13
     * VRINI(123)  , LNKPT(64)                                               4   14
      COMMON /BLK17/ ADVNI(8)    , CICBI(8)    , CABGI(8)    ,              4   15
     * IAQPI(8)      , CNTDR(124) , CNTNM       , IL2         ,              4   16
     * INTMI(31)     , INTLI(31)  , INTBI(32)   , KL1         ,              4   17
     * STBTI(32), TIMEI(32), QVBKI(69)                                       4   18
      COMMON /BLK18/ CICTI(8)    , CTBDI(8)    , STBOI(8)    ,              4   19
     * CBNTI(62)     , CURBI(31)  , CYCLI(31)  , ENINI(496) ,              4   20
     * ENBFI(31)     , GAABI(124) , GAWTI(31)  , GBWTI(31)  ,              4   21
     * GLABI(124)    , GMABI(124) , GUABI(124) , INTOI(496) ,              4   22
     * SABCI(124)    , TKMI(31)   ,WRKBI(31)                               4   23
      COMMON /BLK19/ CC2(129), DFAIL(69), DBF(17),                           4   24
     * MII(31)       , RAWBC(258) , RAWSP(2SP) ,RTC          ,              4   25
     * TSTRT(516)                                                           4   26
      INTEGER RTC                                                            4   27
      COMMON/BLK28/AGR(14),PIA(6),RCM(2),MSB(14),APBM1(14),CPNBU,CPNBT,      4   28
     * MARR(240)    ,  MMAP(2)      ,  UCNT         ,  KCNT         ,       4   29
     * MNC15        ,  MMSBF        ,  CLOCK        ,  MMINF        ,       4   30
     * MINCT        ,  TAB(3)       ,  NBNB(8)                              4   31
      EQUIVALENCE (AUTBI,ADVNI(2))     ,(CICEI,CICBI(2))                     4   32
     4            (GAII,AGR(2))        ,(HBLDI,HSB(2))                      4   33
      DIMENSION HBLOI(8)                                                     4   34
      COMMON/BITL2/BITAR(640)                                                4   35
      DIMENSION ADVNM(32),ABG(32),APB(32),AUTBF(32),CICBP(32),               4   36
     1CICEF(32),CICTF(32),CTBDF(32),CMALF(32),CPABG(32),FSTCF(32),           4   37
     2HBLD(32),IADVP(32),INT1S(32),SEMSK(32),SPLCM(32),STBYD(32),            4   38
     3STRTA(32),TRNSF(32),CICSF(32)                                          4   39
      EQUIVALENCE                                                            4   40
     1(ADVNM,BITAR(  1)),(ABG  ,BITAR( 33)),(APB  ,BITAR( 65)),             4   41
     2(AUTBF,BITAR( 97)),                                                    4   42
     1(CICBP,BITAR(129)),(CICEF,BITAR(161)),(CICSF,BITAR(193)),              4   43
     1(CICTF,BITAR(225)),(CTBDF,BITAR(257)),(CMALF,BITAR(289)),              4   44
     5(CPABG,BITAR(321)),(FSTCF,BITAR(353)),(HBLD ,BITAR(385)),              4   45
     4(IAQVP,BITAR(417)),(INT1S,BITAR(449)),(SEMSK,BITAR(481)),              4   46
     5(SPLCM,BITAR(513)),(STRTA,BITAR(545)),(STBYD,BITAR(577)),              4   47
     6(TRNSF,BITAR(609))                                                     4   48
      COMMON /BYTL2/ICBN,JL2,KL2,IDECR,WSL2(50)                              4   49
      INTEGER ADVNM,ABG,APB,AUTBF,BPSIF,BTRNF,CICBP,CICEF,CICSF,             4   50
     1CICTF,CTBDF,CMALF,CPABG,FSTCF,GAI,HBLD,SEMSK,SPLCM,STBYD,             4   51
     2STRTA,TRNSF                                                            4   52
      INTEGER AMBPN,CBNTB,CNTLN,CYCLC,ENINT,GAABC,GAWTP,GBWTP,               4   53
     1GLABC,GMABC,LOSET,QCICT,QQQ,QQRR,QVBK,RRR,STBTM,SABCT,TEXCT,TIMEB,     4   54
     2TKM,VBL,VBT                                                            4   55
      INTEGER CLENG,CNTDR,EMAST,STUPF,ENTFL                                  4   56
      DIMENSION KMCSP(17)                                                    4   57
      EQUIVALENCE (WSL2(1),I),(WSL2(2),IR10),(WSL2(3),KCTCI),                4   58
     1(WSL2(4),KMCSP)                                                        4   59
      INTEGER XFF                                                            4   60
      DATA XFF/-1/                                                           4   61
      DATA I125S/1/,NSUTC/250/,NCYCL/15/                                     4   62
C  ** ROUTINE N                                                             4   63
C  ** ************************************************************          4   64
C  ** ************************************************************          4   65
C  ** THE PURPOSE OF ROUTINE N IS TO TIME ALL POSSIBLE CONTROLLER CYCLE     4   66
C  **      LENGTHS THAT CAN BE SELECTED FOR ON-STREET USE.                   4   67
      ITIME=RTC                                                              4   68
      CALL OPKMC                                                             4   69
C  ** UPON ENTRY EVERY SECOND, SET KCTCI TO THE NUMBER OF CYCLE LENGTHS      4   70
      KCTCI=NCYCL                                                            4   71
C  ** AT START-UP COMPUTED GO TO STATEMENT WILL BRANCH TO STATEMENT 270      4   72
  190 GO TO (270,200),I125S                                                  4   73
C  ** INCREMENT THE KTH CYCLE TIMING COUNTER KCTC(KCTCI)                     4   74
  200 KCTC(KCTCI)=KCTC(KCTCI)+IDECR                                          4   75
C  ** IF COUNT HAS NOT REACHED KCL(KCTCI) EXIT FROM SUBROUTINE              4   76
      IF (KCTC(KCTCI).NE.KCL(KCTCI)) GO TO 750                               4   77
C  ** OTHERWISE RESET COUNTER TO ZERO                                       4   78
      KCTC(KCTCI)=0                                                          4   79
  750 IF (KCTC(KCTCI).GT.0) GO TO (470,202),I125S                            4   80
C  ** SET THE KTH CYCLE START FLAG                                          4   81
      KCSF(KCTCI)=1                                                          4   82
C  ** IF THIS CYCLE LENGTH WAS NOT PREVIOUSLY SYNCHRONIZED, BUT NOW IS,     4   83
C  ** THE CORRESPONDING FLAG IS KCTF IS SET TO 'ONE'. IFTHE CONVERSE IS     4   84
C  ** TRUE THE CORRESPONDING FLAG IN KCTF IS RESET TO 'ZERO'.               4   85
      IF(KMCSP(KCTCI).EQ.KCTF(KCTCI)) GO TO 10                               4   86
      IR1D=KCTF(KCTCI)                                                       4   87
      IF(IR10.EQ.0) KCTF(KCTCI)=1                                            4   88
      IF(IR10.EQ.1) KCTF(KCTCI)=0                                            4   89
C  ** SCHEDULE ROUTINE E BY SETTING RIGHTMOST BIT IN MASTER ACTIVITY        4   90
```

```
   10 IR10=MAST(EMAST)/2                                                  4   91
      MAST(EMAST)=1+IR10                                                  4   92
      GO TO (470,202),I125S                                               4   93
C  * DECREMENT KTH CYCLE TIME INDEX                                       4   94
  202 KCTCI=KCTCI-1                                                       4   95
C  ** IF ANY MORE CYCLES REPEAT LOOP                                      4   96
      IF(KCTCI.GT.0) GO TO 200                                            4   97
      GO TO 120                                                           4   98
C  ** DECREMENT START-UP TIME COUNTER, NSUTC BY ONE SECOND. NSUTC WAS     4   99
C  ** ORIGINALLY SET TO 125 SECONDS AND IS CHECKED HERE FOR COUNTDOWN     4  100
C  ** TO ZERO.                                                           4  101
  270 NSUTC=NSUTC-IDECR                                                   4  102
      IF(NSUTC.GT.0) GO TO 390                                            4  103
C  ** 125 SECONDS HAVE ELAPSED, SO SET STUPF. SET 125 SECOND SWITCH       4  104
C  ** FOR COMPUTED GO TO SO THAT RETURN WILL BYPASS INITIAL SYNCHRONIZA   4  105
C  ** TION PORTION.                                                       4  106
      STUPF=1                                                             4  107
      I125S=2                                                             4  108
C      CLEAR PREDICTION STAT FILES                                        4  109
      DO 20 IDUM=1,900                                                    4  110
      OUT(IDUM)=0.0                                                       4  111
   20 CONTINUE                                                            4  112
      DO 30 IUNIT=12,17                                                   4  113
      CALL BUFFEROUT(IUNIT,1,OUT,900,II,NN)                               4  114
   25 IF(II.NE.2) GO TO 25                                                4  115
   30 CONTINUE                                                            4  116
      GO TO 190                                                           4  117
C  ** CHECK THE KTH CYCLE TIMING FLAG ARRAY, KCTF, FOR CYCLE LENGTH       4  118
C  ** KCTCI. THIS FLAG IS A 'ONE' IF THE CYCLE LENGTH HAD PREVIOUSLY      4  119
C  ** BEEN SYNCHRONIZED WITH THE DISTRICT'S MASTER CONTROLLER PULSES      4  120
  390 IF(KCTF(KCTCI).EQ.0) GO TO 530                                      4  121



C  ** CALL CYCLE LENGTH COUNT-DOWN ROUTINE                                4  122
      GO TO 200                                                           4  123
C  ** DECREMENT KCTCI AND CHECK IF ANY MORE CYCLE LENGTHS.                4  124
  470 KCTCI=KCTCI-1                                                       4  125
      IF(KCTCI.GT.0) GO TO 390                                            4  126
C  ** NO MORE CYCLE LENGTHS. RETURN TO A1.                                4  127
      GO TO 120                                                           4  128
C  ** TEST IF RADIO INPUT SYNCE PULSE EXISTS FOR THIS CYCLE LENGTH.       4  129
C  ** IF NOT SET KCTF TO 1                                               4  130
  530 IF (KMCSP(KCTCI).NE.0) KCTF(KCTCI)=1                                4  131
      GO TO 470                                                           4  132
C  ** THIS IS THE END OF RTNN                                            4  133
C  ** ***********************************************************        4  134
C  ** ***********************************************************        4  135
  120 CALL RTNB                                                           4  136
C  ** IF START UP FLAG EQUALS ZERO RETURN TO EXECUTIVE.                   4  137
  350 IF (STUPF.NE.0) GO TO 400                                           4  138
      RETURN                                                              4  139
C  ** ***********************************************************        4  140
C  ** ***********************************************************        4  141
C **  THIS IS THE START OF THE MAIN LOOP OF RTNA1                         4  142
  400 ICYN=0                                                              4  143
C  ** OUTER LOOP IS DONE 16 TIMES. INNER LOOP HANDLES 8 CONTROLLERS       4  144
C  ** FOR TOTAL 128 CONTROLLERS                                          4  145
      DO 830 IL2=1,4                                                      4  146
C  ** CALL SUBROUTINE TO UNPACK ALL BIT ARRAYS USED BY LEVEL 2 RTNS       4  147
      CALL UPBL2                                                          4  148
C  **     SWITCH SETTINGS FOR 8 CONTROLLERS ARE RETURNED. 9TH ELEMENT     4  149
C  **     OF EACH ARRAY CONTAINS PACKED DATA FOR THESE CONTROLLERS         4  150
C  **     RIGHT JUSTIFIED.                                                4  151
      IF (ABGI(2*IL2-1).EQ.CABGI(2*IL2-1)) GO TO 520                      4  152
      IF (HBLDI(2*IL2-1).EQ.0) GO TO 525                                  4  153
      CALL RTNP                                                           4  154
  520 IF (STBDI(2*IL2-1).EQ.0) GO TO 525                                  4  155
      CALL RTNR                                                           4  156
  525 CALL RTNT                                                           4  157
      CALL RTNV                                                           4  158
      IF (SMSKI(2*IL2-1).NE.XFF) CALL RTNX                                4  159
C  ** PICK UP ADVANCE PULSES AND STORE IN OUTPUT BUFFER                   4  160
      DO 600 I=1,32                                                       4  161
      APB(I)=IADVP(I)                                                     4  162
C  **     CLEAR ADVANCE PULSES.                                           4  163
      IADVP(I) = 0                                                        4  164
  600 CONTINUE                                                            4  165
C  ** CALL SUBROUTINE TO PACK ALL BIT ARRAYS USED BY LEVEL 2 RTNS         4  166
      CALL PKBL2                                                          4  167
      ICYN=ICYN+32                                                        4  168
  830 CONTINUE                                                            4  169
      ITIME=RTC-ITIME                                                     4  170
      RETURN                                                              4  171
      END                                                                 4  172
```

2.6.6 SUBROUTINE BUFFERIN/OUT

```
RBUTINE:  BUFFERIN/OUT

*  *   BUFFERIN/OUT                                                    23    1
         DEF     BUFFER0U,BUFFERIN                                     23    2
         REF     F:11,F:12,F:13,F:14,F:15,F:16,F:17,F:18               23    3
BUFFERIN RES     0                                                     23    4
         LI,14   X'101'              READ CODE                         23    5
         B       *+2                                                   23    6
BUFFER0U RES     0                                                     23    7
         LI,14   X'11'               WRITE CODE                        23    8
         LW,7    15                                                    23    9
         LW,6    4,7                 STATUS WORD                       23   10
         LI,8    1                                                     23   11
         STX,8   0,6                 SET STATUS                        23   12
         LW,5    1,7                 UNIT NO.                          23   13
         LW,6    0,6                                                   23   14
         LW,R    DCB-11,6                                              23   15
         STC,14  8                                                     23   16
         STX,3   FPT                                                   23   17
         LW,3    5,7                                                   23   18
         LW,14   ,6                  KEY NO.                           23   19
         STX,14  FPT+5               SET KEY TO ZERO                   23   20
         LW,6    2,7                 BUFFER ADDR                       23   21
         AND,6   MASK                                                  23   22
         STX,6   FPT+3                                                 23   23
         LW,6    3,7                 WORD COUNT                        23   24
         LW,5    0,6                                                   23   25
         SLS,6   2                   BYTE COUNT                        23   26
         STX,6   FPT+4                                                 23   27
         CAL1,1  FPT                                                   23   28
         LI,9    2                                                     23   29
EXIT     LW,6    4,7                                                   23   30
         STX,9   0,6                 SET I/O COMPLETE                  23   31
         AI,15   6                                                     23   32
         B       *15                 RETURN                            23   33
ERROR    RES     0                                                     23   34
         LI,9    4                                                     23   35
         B       EXIT                                                  23   36
FPT      DATA    0,X'B1000010',ERROR,0,0,0                             23   37
DCB      DATA    F:11,F:12,F:13,F:14,F:15,F:16,F:17,F:18               23   38
MASK     DATA    X'1FFFF'                                              23   39
         END                                                           23   40
```

2.6.7 SUBROUTINE PKBL2

```
- ROUTINE:  PKBL2

C   *   PKBL2                                                                  7    1
      SUBROUTINE PKBL2                                                         7    2
      COMMON /BLK7 /ABGI(16)    , INTHI(31)   , INT2I(31)  ,                   7    3
     * KCTC(17),K3PHI(31),STUFF,NGL(31)                                       7    4
      COMMON /BLK14/ CLENG      , DTLNG       , CMLNG      ,                   7    5
     * DUMY1      , DUMY2,      ,                                            7    6
     * CNTLI(372), ENTFL(5), KCL(17), KCTF(17),                               7    7
     * KCSF(17), NMVAI(31), SMSKI(8),                                         7    8
     * VMINI(123)  , LNKRT(64)                                                7    9
      COMMON /BLK17/ ADVNI(8)   , CICBI(8)    , ABGI(8)    ,                  7   10
     * IADPI(8)    , CNTDR(124) , CNTNM       , IL2        ,                  7   11
     * INTMI(31)   , INTLI(31)  , INTBI(32)   , KLI        ,                  7   12
     * STBTI(32), TIMEI(32), QVBKI(69)                                        7   13
      COMMON /BLK18/ CICTI(8)   , CTBDI(8)    , STBDI(8)   ,                  7   14
     * CBNTI(62)   , CURBI(31)  , CYCLI(31)  , ENINI(496) ,                  7   15
     * ENBFI(31)   , GAABI(124) , GAATI(31)  , GBWTI(31)  ,                  7   16
     * GLABI(124)  , GMABI(124) , GUABI(124) , INTDI(496) ,                  7   17
     * SABCI(124)  , TKMI(31)   ,*RKBI(31)                                   7   18
      COMMON /BLK19/ CC2(129), DETAIL(69), DBF(17),                          7   19
     * MII(31)     , RAWBC(258) , RAASP(258) ,BTC        ,                  7   20
     * TSTRT(516)                                                            7   21
      COMMON/BLK20/AGR(14),PIA(6),BCM(2),MSB(14),APBM1(14),CPNBU,CPNBT,      7   22
     * MARR(640)   , MMAP(2)    , JCNT       , KCNT       ,                  7   23
     * MNC15       , WMSBF      , CLOCK      , WMINF      ,                  7   24
     * MINCT       , TAB(3)     , NBNB(8)                                   7   25
      EQUIVALENCE (AUTBI,ADVNI(2))     ,(CICEI,CICBI(2))    ,              7   26
     1            (CICSI,CTBDI(2))     ,(CMALI,CICTI(2))    ,              7   27
     2            (FSTCI,CABGI(2))     ,(IN1SI,IADPI(2))    ,              7   28
     3            (SPLCI,SMSKI(2))     ,(TRNSI,STBDI(2))    ,              7   29
     4            (GAII,AGR(2))        ,(HBLDI,MSB(2))      ,              7   30
     5            (APBI,APBM1(2))      ,(STRTI,ABGI(2))                    7   31
      INTEGER ADVNI,ABGI,APBI,AUTBI,CICBI,CICEI,CICSI,CICTI,CTBDI,           7   32
     1CMALI,CABGI,FSTCI,GAII,HBLDI,IADPI,IN1SI,SMSKI,SPLCI,STRTI,           7   33
     2STBDI,TRNSI                                                           7   34
      COMMON /BYTL2/ICBN,JL2,KL2,IDECR,WSL2(50)                              7   35
      COMMON/BITL2/BITAR(640)                                                7   36
      DIMENSION ADVNH(32),ABG(32),APB(32),AUTBF(32),CICBP(32),               7   37
     1CICEF(32),CICTF(32),CTBDF(32),CMALF(32),CPABG(32),FSTCF(32),          7   38
     2HBLD(32),IADVP(32),INT1S(32),SEMSK(32),SPLCH(32),STBYD(32),           7   39
     3STRTA(32),TRNSF(32),CICSF(32)                                         7   40
      EQUIVALENCE                                                            7   41
     1(ADVNH,BITAR(  1)),(ABG  ,BITAR( 33)),(APB  ,BITAR( 65)),             7   42
     2(AUTBF,BITAR( 97)),                                                   7   43
     1(CICBP,BITAR(129)),(CICEF,BITAR(161)),(CICSF,BITAR(193)),             7   44
     1(CICTF,BITAR(225)),(CTBDF,BITAR(257)),(CMALF,BITAR(289)),             7   45
     3(CPABG,BITAR(321)),(FSTCF,BITAR(353)),(HBLD ,BITAR(385)),             7   46
     4(IADVP,BITAR(417)),(INT1S,BITAR(449)),(SEMSK,BITAR(481)),             7   47
     5(SPLCH,BITAR(513)),(STRTA,BITAR(545)),(STBYD,BITAR(577)),             7   48
     6(TRNSF,BITAR(609))                                                    7   49
      INTEGER ADVNH,ABG,APB,AUTBF,BPSIF,BTRNF,CICBP,CICEF,CICSF,             7   50
     1CICTF,CTBDF,CMALF,CPABG,FSTCF,GAI,HBLD,SEMSK,SPLCH,STBYD,             7   51
     2STRTA,TRNSF                                                           7   52
      EQUIVALENCE (I,WSL2(1)),(J,WSL2(2)),(K,WSL2(3)),(L,WSL2(4))            7   53
      CALL PKBIT (SPLCI,IL2 ,SPLCH)                                          7   54
      CALL PKBIT (TRNSI,IL2 ,TRNSF)                                          7   55
      CALL PKBIT (FSTCI,IL2 ,FSTCF)                                          7   56
      CALL PKBIT (CICEI,IL2 ,CICEF)                                          7   57
      CALL PKBIT (CICSI,IL2 ,CICSF)                                          7   58
      CALL PKBIT (CICTI,IL2 ,CICTF)                                          7   59
      CALL PKBIT (ADVNI,IL2 ,ADVNH)                                          7   60
      CALL PKBIT (IN1SI,IL2 ,INT1S)                                          7   61
      CALL PKBIT(HBLDI,IL2 ,HBLD)                                            7   62
      CALL PKBIT (AUTBI,IL2 ,AUTBF)                                          7   63
      CALL PKBIT (CMALI,IL2 ,CMALF)                                          7   64
      CALL PKBIT (STBDI,IL2 ,STBYD)                                          7   65
      CALL PKBIT (CICBI,IL2 ,CICBP)                                          7   66
      CALL PKBIT (ABGI,IL2 ,ABG)                                             7   67
      CALL PKBIT(APBI,IL2 ,APB)                                              7   68
      CALL PKBIT (CABGI,IL2 ,CPABG)                                          7   69
      CALL PKBIT (IADPI,IL2 ,IADVP)                                          7   70
      CALL PKBIT (STRTI,IL2 ,STRTA)                                          7   71
      RETURN                                                                 7   72
      END                                                                    7   73
```

2.6.8 SUBROUTINE UPBL2

```
RBUTINE:  UPBL2

      C  *   UPBL2                                                                  6    1
           SUBROUTINE UPBL2                                                         6    2
           COMMON /BLK7 /ABGI(16)     , INTMI(31)  , INT2I(31)  ,                   6    3
          * KCTCI(17),K3PMI(31),STUPF,NQL(31)                                       6    4
           COMMON /BLK14/ CLENG       , DTLNG      , CMLNG      ,                   6    5
          * DUMY1       , DUMY2,                                                    6    6
          * CNTLI(372), ENTFL(5), KCL(17), KCTF(17),                               6    7
          * KCSF(17), NMVAI(31), SMSKI(8),                                         6    8
          * VMINI(123)  , LNKPT(64)                                                6    9
           COMMON /BLK17/ ADVNI(8)    , CICBI(8)   , CABGI(8)   ,                   6   10
          * IADPI(8)     , CNTDR(124) , CNTNM      , IL2        ,                   6   11
          * INTMI(31)    , INTLI(31)  , INTBI(32)  , KL1        ,                   6   12
          * STBTI(32), TIMEI(32), QVBKI(69)                                        6   13
           COMMON /BLK18/ CICTI(8)    , CTBDI(8)   , STBDI(8)   ,                   6   14
          * CBNTI(62)    , CURBI(31)  , CYCLI(31)  , ENINI(496) ,                   6   15
          * ENBFI(31)    , GAABI(124) , GAWTI(31)  , GBWTI(31)  ,                   6   16
          * GLABI(124)   , GMABI(124) , GUABI(124) , INTDI(496) ,                   6   17
          * SABCI(124)   , TKMI(31)   ,WRKBI(31)                                   6   18
           COMMON /BLK19/ CC2(129), DFAIL(69), DBF(17),                            6   19
          * MII(31)      , RAWBC(258) , RAWSP(258) ,BTC         ,                   6   20
          * TSTRT(516)                                                            6   21
           COMMON/BLK28/AGR(14),PIA(6),RCM(2),HSB(14),APBM1(14),CPNBU,CPNBT,       6   22
          * MARR(640)    , MMAP(2)    , JCNT       , KCNT       ,                   6   23
          * MNC15        , MMSBF      , CLOCK      , MMINF      ,                   6   24
          * MINCT        , TAB(3)     , NBNB(8)                                   6   25
           EQUIVALENCE (AUTBI,ADVNI(2))     ,(CICEI,CICBI(2))    ,                6   26
          1            (CICSI,CTBDI(2))     ,(CMALI,CICTI(2))    ,                6   27
          2            (FSTCI,CABGI(2))     ,(IN1SI,IADPI(2))    ,                6   28
          3            (SPLCI,SMSKI(2))     ,(TRNSI,STBDI(2))    ,                6   29
          4            (GAII,AGR(2))        ,(HBLDI,HSB(2))      ,                6   30
          5            (APBI,APBM1(2))      ,(STRTI,ABGI(2))                      6   31
           INTEGER ADVNI,ABGI,APBI,AUTBI,CICBI,CICEI,CICSI,CICTI,CTBDI,            6   32
          1CMALI,CABGI,FSTCI,GAII,HBLDI,IADPI,IN1SI,SMSKI,SPLCI,STRTI,            6   33
          2STBDI,TRNSI                                                            6   34
           COMMON /BITL2/ICBN,JL2,KL2,IDECR,WSL2(50)                              6   35
           COMMON/BITL2/BITAR(640)                                                6   36
           DIMENSION ADVNM(32),ABG(32),APB(32),AUTBF(32),CICBP(32),               6   37
          1CICEF(32),CICTF(32),CTBDF(32),CMALF(32),CPABG(32),FSTCF(32),           6   38
          2HBLD(32),IADVP(32),INT1S(32),SEMSK(32),SPLCM(32),STBYD(32),            6   39
          3STRTA(32),TRNSF(32),CICSF(32)                                          6   40
           EQUIVALENCE                                                            6   41
          1(ADVNM,BITAR(  1)),(ABG  ,BITAR( 33)),(APB  ,BITAR( 65)),              6   42
          2(AUTBF,BITAR( 97)),                                                    6   43
          1(CICBP,BITAR(129)),(CICEF,BITAR(161)),(CICSF,BITAR(193)),              6   44
          1(CICTF,BITAR(225)),(CTBDF,BITAR(257)),(CMALF,BITAR(289)),              6   45
          3(CPABG,BITAR(321)),(FSTCF,BITAR(353)),(HBLD ,BITAR(385)),              6   46
          4(IADVP,BITAR(417)),(INT1S,BITAR(449)),(SEMSK,BITAR(481)),              6   47
          5(SPLCM,BITAR(513)),(STRTA,BITAR(545)),(STBYD,BITAR(577)),              6   48
          6(TRNSF,BITAR(609))                                                     6   49
           INTEGER ADVNM,ABG,APB,AUTBF,BPSIF,BTRNF,CICBP,CICEF,CICSF,             6   50
          1CICTF,CTBDF,CMALF,CPABG,FSTCF,GAI,HBLD,SEMSK,SPLCM,STBYD,              6   51
          2STRTA,TRNSF                                                            6   52
           EQUIVALENCE (I,WSL2(1)),(J,WSL2(2)),(K,WSL2(3)),(L,WSL2(4))            6   53
           CALL UNBIT (SPLCI,IL2 ,SPLCM)                                          6   54
           CALL UNBIT (TRNSI,IL2 ,TRNSF)                                          6   55
           CALL UNBIT (FSTCI,IL2 ,FSTCF)                                          6   56
           CALL UNBIT (ADVNI,IL2 ,ADVNM)                                          6   57
           CALL UNBIT (IN1SI,IL2 ,INT1S)                                          6   58
           CALL UNBIT (AUTBI,IL2 ,AUTBF)                                          6   59
           CALL UNBIT (CMALI,IL2 ,CMALF)                                          6   60
           CALL UNBIT (STBDI,IL2 ,STBYD)                                          6   61
           CALL UNBIT (CICBI,IL2 ,CICBP)                                          6   62
           CALL UNBIT (ABGI,IL2 ,ABG)                                             6   63
           CALL UNBIT(APBI,IL2 ,APB)                                              6   64
           CALL UNBIT (CICEI,IL2 ,CICEF)                                          6   65
           CALL UNBIT (CICSI,IL2 ,CICSF)                                          6   66
           CALL UNBIT (CICTI,IL2 ,CICTF)                                          6   67
           CALL UNBIT (CTBDI,IL2 ,CTBDF)                                          6   68
           CALL UNBIT (CABGI,IL2 ,CPABG)                                          6   69
           CALL UNBIT(HBLDI,IL2 ,HBLD)                                            6   70
           CALL UNBIT (IADPI,IL2 ,IADVP)                                          6   71
           CALL UNBIT (SMSKI,IL2 ,SEMSK)                                          6   72
           CALL UNBIT (STRTI,IL2 ,STRTA)                                          6   73
           RETURN                                                                 6   74
           END                                                                    6   75
```

2.6.9 SUBROUTINE UPKMC

```
ROUTINE:  UPKMC

      C   *   UPKMC                                                    S    1
          SUBROUTINE UPKMC                                            S    2
      C                                                               S    3
      C             THIS ROUTINE UNPACKS THE                          S    4
      C             LEFTMOST 17 BITS OF                               S    5
      C             KMCSP INTO THE ARRAY KMCS                         S    6
      C                                                               S    7
          EXTERNAL KMCSP                                              S    8
          COMMON /BYTL2/ICON,JL2,KL2,IPECR,MSL2(50)                   S    9
          DIMENSION KMCS(17)                                          S   10
          EQUIVALENCE (MSL2(4),KMCS)                                  S   11
      S       LM,3   KMCSP                                            S   12
      S       SLS,3   16                                              S   13
          DO 20 I = 1, 16                                             S   14
          KMCS(I)=0                                                   S   15
      S       CI,3   0                                                S   16
      S       BGEZ 10S                                                S   17
          KMCS(I)=1                                                   S   18
       10 CONTINUE                                                    S   19
      S       SLS,3  1                                                S   20
       20 CONTINUE                                                    S   21
          RETURN                                                      S   22
          END                                                         S   23
```

2.6.10 ROUTINE B

```
ROUTINE: RTNB

*  *  RTNB                                                          2    1
       PAGE                                                        2    2
       DEF       RTNB                                              2    3
       REF       RTNC                                              2    4
       REF       NUMVED                                            2    5
       REF       TT                                                2    6
       REF       KNEW                                              2    7
       REF       DBP,RTC                                           2    8
       REF       P1,P2,P3,P4                                       2    9
       REF       TSTART                                            2   10
       REF       SAVR0                                             2   11
*                                                                   2   12
P1END  EQU       P1+1                                              2   13
P2END  EQU       P2+1                                              2   14
P3END  EQU       P3+1                                              2   15
P4END  EQU       P4+1                                              2   16
TSTEND EQU       TSTART                                            2   17
       PSYS      0                                                 2   18
       SYSTEM    UTCSWES                                           2   19
BSAVER DATA      0                                                 2   20
STACK  RES       16                                                2   21
RTNB   RES       0                                                 2   22
       STW,R0    BSAVER0          SAVE RETURN                      2   23
       LI,R3     0                TIME TO START INDEX              2   24
       LI,R2     0                VEHICLE DETECTOR DATA INDEX      2   25
BEGINB RES       0                                                 2   26
       LW,R1     DBP         DETERMINE WHICH INPUT                 2   27
       AND,R1    =X'3'                                             2   28
       B         TABDBP,R1        BUFFERS TO PROCESS               2   29
TABDBP B         BDBP0                                             2   30
       B         BDBP1                                             2   31
       B         BDBP2                                             2   32
       B         BDBP3                                             2   33
BDBP0  RES       0                                                 2   34
       LW,R10    P1END,R2                                          2   35
       EOR,R10   P4END,R2         W                                2   36
       LW,R9     P3END,R2                                          2   37
       EOR,R9    P4END,R2         A                                2   38
       AND,R9    R1D              A = A AND W                      2   39
       BEZ       BW1              A = D                            2   40
       LW,R11    P4END,R2                                          2   41
       EOR,R11   R9                                                2   42
       STW,R11   P4END,R2         P4(I) = P4(I) EOR A              2   43
       B         BW               TO FORM NEW W                    2   44
BDBP1  RES       0                                                 2   45
       LW,R10    P2END,R2                                          2   46
       EOR,R10   P1END,R2         W                                2   47
       LW,R9     P4END,R2                                          2   48
       EOR,R9    P1END,R2         A                                2   49
       AND,R9    R1D              A = A AND W                      2   50
       BEZ       BW1              A = 0                            2   51
       LW,R11    P1END,R2                                          2   52
       EOR,R11   R9                                                2   53
       STW,R11   P1END,R2         P1(I) = P1(I) EOR A              2   54
       B         BW               TO FORM NEW W                    2   55
BDBP2  RES       0                                                 2   56
       LW,R10    P3END,R2                                          2   57
       EOR,R10   P2END,R2         W                                2   58
       LW,R9     P1END,R2                                          2   59
```

```
                EOR,R9    P2END,R2        A                                   2   60
                AND,R9    R10             A = A AND W                         2   61
                BEZ       BW1             A = 0                               2   62
                LW,R11    P2END,R2                                            2   63
                EOR,R11   R9                                                  2   64
                STW,R11   P2END,R2        P2(I) = P2(I) EOR A                 2   65
                B         BW              TO FORM NEW W                       2   66
BDBP3           RES       0                                                   2   67
                LW,R10    P4END,R2                                            2   68
                EOR,R10   P3END,R2        W                                   2   69
                LW,R9     P2END,R2                                            2   70
                EOR,R9    P3END,R2        A                                   2   71
                AND,R9    R10             A = A AND W                         2   72
                BEZ       BW1             A = 0                               2   73
                LW,R11    P3END,R2                                            2   74
                EOR,R11   R9                                                  2   75
                STW,R11   P3END,R2        P3(I) = P3(I) EOR A                 2   76
BW              RES       0                                                   2   77
                EOR,R10   R9              W =W EOR A                          2   78
BW1             RES       0                                                   2   79
                CI,R10    0                   W = 0                         2   80
                BE        BW8             YES                                 2   81
                LI,R1      =4             INITIALIZE J                        2   82
BW2             RES       0                                                   2   83
                LB,R11    R11,R1                                              2   84
                BEZ       BW7             X = 0                               2   85
BW3             RES       0                                                   2   86
                SCS,R11   =8                                                  2   87
                LI,R9     4           BYTE 1 OF W = 0, L =  0                 2   88
                AW,R9     R1          BYTE 2 OF W = 0, L =  8                 2   89
                SAS,R9    3                                                   2   90
*                                     BYTE 4 OF W = 0, L = 24                 2   91
BW4             RES       0                                                   2   92
                CI,R11    0                                                   2   93
                BGE       BW6             MSB OF X = 1                        2   94
                LW,R5     R3                                                  2   95
                AW,R5     R9                  K=K1+L, RANGE' 0 TO (NUMVEO-1)  2   96
                CW,R5     NUMVEO              K ' NUMBER OF VEHICLE DETECTORS 2   97
                BGE       EXITB               FINI                            2   98
                STW,R5    KNEW                                                2   99
                LW,R13    TSTEND,R5                                           2  100
                BGEZ      BW5       TSTART(K) = 0                             2  101
                AND,R13   =X'7FFFFFFF'  A = TSTART(K) AND MASK                2  102
                LW,R12    RTC               TSTART(K) = RTC                   2  103
                STW,R12   TSTEND,R5                                           2  104
                SW,R12    R13                                                 2  105
                STW,R12   TT                TT = RTC - A                      2  106
                LCI       0                                                   2  107
                STM,0     STACK                                               2  108
                LW,0      SAVR0                                               2  109
                LI,14     0                                                   2  110
                BAL,15    RTNC                                                2  111
                LCI       0                                                   2  112
                LM,       STACK                                               2  113
                B         BW6         TO CHECK FOR NEXT DETECTOR              2  114
BW5             RES       0                                                   2  115
                LW,R12    RTC                                                 2  116
                OR,R12    =X'80000000'                                        2  117
                STW,R12   TSTEND,R5       TSTART(K) = RTC OR MASK             2  118
BW6             RES       0                                                   2  119
                AI,R9       1           L = L + 1                           2  120
                SLS,R11   1           X LEFT 1 BIT                          2  121



                CI,R11    0                                                   2  122
                BNE       BW4             X = 0                               2  123
BW7             RES       0                                                   2  124
                BIW,R1    BW2         CHECK ALL BYTES OF W                    2  125
BW8             RES       0                                                   2  126
                AI,R3     32                  K1=K1+32                        2  127
                CW,R3     NUMVED              K1 ' NUMBER OF VEHICLE DETECTORS 2 128
                BGE       EXITB               FINI                            2  129
                AI,R2     2                   I=I+2                           2  130
                B         BEGINB          CHECK NEXT GROUP OF 32 DETECTORS    2  131
EXITB           RES       0                                                   2  132
                LW,R0     SAVER0              RESTORE RETURN                  2  133
                B         *R0                                                 2  134
                END                                                           2  135
```

2.6.11 ROUTINE C

```
ROUTINE:  RTNC

      C   *   RTNC                                                          1    1
          SUBROUTINE RTNC                                                  1    2
          COMMON/RTNCOMP/ICOMP(12)                                         1    3
          COMMON/LSGCOMP/JCOMP(200)                                        1    4
          INTEGER   CC2,DFAIL,   DBF,   DALP,DALP,RAA8C,RAASP,            1    5
         *    TD,   TT,   TTC                                             1    6
          COMMON /BLK13/   RAC(258)     ,  DALP(17)     ,  EBCC          1    7
         1 FTAB, FTBAD,  MSEIF(69)                                        1    8
          COMMON /BLK16/  DBF           ,  KNEW         ,  TT            1    9
          COMMON /BLK19/ CC2(129), DFAIL(69), DBF(17),                     1   10
         * MI(31)       ,  RAA8C(258)  ,  RAASP(258)  ,  RTC            1   11
         * TSTRT(516)                                                     1   12
          COMMON /BLK19P/ CC2P(129),RAA8CP(258),RAASPP(258)                1   13
          DATA IB,TD/0,1/                                                  1   14
      C                                                                    1   15
      C     SET DBF(K) = 0                                                 1   16
      C                                                                    1   17
            KNW = KNEW + 1                                                 1   18
            CALL PTBI(DBF,KNW,IB,0)                                        1   19
            CALL GETBI(DALP,KNW,ITMP,0)                                    1   20
            IF(ITMP.NE.0) RETURN                                           1   21
      C                                                                    1   22
      C     DETECTOR WITH LINK ARRAY                                       1   23
      C                                                                    1   24
            CALL HALF(DAL,KNW,IR4)                                         1   25
      C                                                                    1   26
      C     TEST FOR DETECTOR FAILED                                       1   27
      C                                                                    1   28
            IR4 = IR4 + 1                                                  1   29
            CALL GETBY(DFAIL,IR4,ITMP)                                     1   30
      C                                                                    1   31
      C     IF DETECTOR FAILED(NOT EQUAL ZERO) RETURN                      1   32
      C                                                                    1   33
            IF(ITMP.NE.0) RETURN                                           1   34
      C                                                                    1   35
      C     DETECTOR CAR COUNT UPDATED                                     1   36
      C                                                                    1   37
            CALL GETBY(CC2,KNW,ITMP)                                       1   38
            ITMP = ITMP + 1                                                1   39
            CALL PTBY(CC2,KNW,ITMP)                                        1   40
            CALL GETBY(CC2P,KNW,ITMP)                                      1   41
            ITMP=ITMP+1                                                    1   42
            CALL PTBY(CC2P,KNW,ITMP)                                       1   43
      C                                                                    1   44
      C     CORRECTED PULSE LENGTH = PULSE LENGTH + CORRECTION CONSTANT    1   45
      C                                                                    1   46
            IR11 = TT - TD                                                 1   47
            IF(IR11.GE.8) GO TO 10                                         1   48
      C                                                                    1   49
      C     TEST TO.GT.1/4 SEC AT 8S, SET IF LESS                          1   50
      C                                                                    1   51
            IR11 = 8                                                       1   52
         10 CONTINUE                                                       1   53
            TTC = IR11                                                     1   54
      C                                                                    1   55
      C     RAA OCCUPANCY UPDATED BY CORRECTED PULSE LENGTH                1   56
      C                                                                    1   57
            CALL HALF(RAA8C,KNW,ITMP)                                      1   58
            ITMP=ITMP+IR11                                                 1   59



            CALL PTHLF(RAA8C,KNW,ITMP)                                     1   60
            CALL HALF(RAA8CP,KNW,ITMP)                                     1   61
            ITMP=ITMP+IR11                                                 1   62
            CALL PTHLF(RAA8CP,KNW,ITMP)                                    1   63
            CALL HALF(RAASP,KNW,ITMP)                                      1   64
            ITMP = 512/TTC + ITMP                                          1   65
            CALL PTHLF(RAASP,KNW,ITMP)                                     1   66
            CALL HALF(RAASPP,KNW,ITMP)                                     1   67
            ITMP=ITMP+512/TTC                                              1   68
            CALL PTHLF(RAASPP,KNW,ITMP)                                    1   69
            RETURN                                                         1   70
            END                                                            1   71
```

2.6.12 ROUTINE E

```
ROUTINE:  RTNE

C   *   RTNE                                                                  2    1
      SUBROUTINE RTNE                                                        2    2
      INTEGER   TKCF,   DWL, CYCLC, DFAIL,  DWLP, DMALF,   D8F,   DIS,      2    3
     *  CMMAL, TSTRT,   GAP,   RTC, VHIST,  P08F, TM8EF,   CC2, RAWSP,      2    4
     *  RAWAC, RLNK8, RLNKC, CMTAB, CMLNG,  H8LD, DTTAB, DTLNG, ENTFL,      2    5
     *    TT3,   TT7                                                        2    6
      DIMENSION P08F(32)                                                     2    7
      C8MM8N /RTNEF/ I6, JL                                                  2    8
      C8MM8N /8LK8 /  FMC         ,  FMARK       ,  MAST(9)     ,          2    9
     * MMAST       ,  JMAST       ,  KMAST       ,  EMAST       ,          2   10
     * HMAST       ,  WMAST       ,  QMAST       ,  IMAST       ,          2   11
     * SPACE       ,  MP8KY       ,  QCNT                                   2   12
      C8MM8N /8LK8/ M1, NDLNK(69), TT3,                                      2   13
     * TT7                                                                   2   14
      C8MM8N /8LK10/  CICSC(16)   ,  CICSY(8)    ,  CTLSC(16)   ,          2   15
     2 CTLSY(4),CNSEC(31),CNTZN(19),LNKCN(69),                               2   16
     * TIMCH(4)    ,  ZSI(32)                                               2   17
      C8MM8N /8LK11/  HS815(32)   ,  IG15(64)    ,  KW          ,          2   18
     2 LNKOI(64),N08L(69),N8NCS,N8CNT(4),                                    2   19
     * T8SU                                                                  2   20
      C8MM8N /8LK13/  DWL(259)    ,  DWLP(17)    ,  E8OC        ,          2   21
     1 FTA8, FTBWD, M8EIF(69)                                                2   22
      C8MM8N /8LK14/  CLENG       ,  DTLNG       ,  CMLNG       ,          2   23
     * DUMY1, DUMY2, CNTLN(372),ENTFL(5),                                    2   24
     * KCL(17), KCTF(17), KCSF(17),                                          2   25
     * NMVAR(31)   ,  SEMSK(8)    ,  VRINT(123)  ,  LNKPT(64)               2   26
      C8MM8N /8LK15/  CMSET       ,  HBUFL       ,  IGPI        ,          2   27
     * MNUMF       ,  N8MCH       ,  NCW22       ,  NCWD2       ,          2   28
     * NCWRD       ,  NMANP       ,  NMCTL       ,  NMLNK       ,          2   29
     * NMSCT       ,  NMVED       ,  NPAT8       ,  NP84        ,          2   30
     * NRESP       ,  NSTM1       ,  T8SIZ       ,  T8YTE       ,          2   31
     * CS          ,  DS          ,  FS          ,  NS          ,          2   32
     * QS          ,  RS          ,  SS          ,  SCS                    2   33
      C8MM8N /8LK18/  CICTF(8)    ,  CT8DF(8)    ,  ST8YD(8)    ,          2   34
     * C8NT8(62)   ,  CUR9F(31)   ,  CYCLC(31)   ,  ENINT(496)  ,          2   35
     * EN8FF(31)   ,  GGGT(124)   ,  GAWTP(31)   ,  J8WTP(31)   ,          2   36
     * GLABC(124)  ,  GGGG(124)   ,  GUABC(124)  ,  INTDU(496)  ,          2   37
     * SSSS(124)   ,  TKM(31)     ,  WRK8F(31)                              2   38
      C8MM8N /8LK19/ CC2(129), DFAIL(69), C8F(17),                           2   39
     * MI(31)      ,  RAW8C(258)  ,  RAWSP(258)  ,  RTC         ,          2   40
     * ISTRT(516)                                                           2   41
      C8MM8N /8LK23/  EXTGF(3)    ,  IHIBE       ,  LNKSP       ,          2   42
     * NI, 8ACC(138), RLNKC, RLNK8, SACC(138), STPTM, VACC(138),            2   43
     *T8UFF(1655)                                                          2   44
      C8MM8N /8LK24/ AMIST(138), CNDIS, DCF,                                 2   45
     * D9W         ,  FMT8D       ,  FSTFL       ,  HLIDF       ,          2   46
     * HLIDT(96)   ,  NHDAY       ,  PRC8D       ,  PTN(745)    ,          2   47
     * SMTFL, SRDIS, TMRSM, VHIST(136)                                       2   48
      C8MM8N /8LK25/ AMCC(136), CMMAL(17), CMTAB(258),                       2   49
     * DTTAB(258)  ,  DIS(17)     ,  DMALF(17)   ,  DM9DE       ,          2   50
     * FLTAB(800)  ,  HRF         ,  M8DES       ,  NAI         ,          2   51
     * N8FAL, S8AM(69), SECFC(4), SCDFC(4), V8L(136)                         2   52
      C8MM8N/8LK28/AGR(14),PIA(6),QCM(2),HS9(14),AP8M1(14),CPN8U,CPN8T,      2   53
     * MARR(640)   ,  MMAP(2)     ,  QCNT        ,  KCNT        ,          2   54
     * MNC15       ,  WHS8F       ,  CL8CK       ,  WMINF       ,          2   55
     * MINCT       ,  TAB(3)      ,  N8N8(8)                                2   56
      EQUIVALENCE (LCCRT,LNKCN)                                              2   57
      EQUIVALENCE (H8LD(1),HS8(2))                                           2   58
      EQUIVALENCE (NDMAX,NMVED)                                              2   59


      DATA NCT/ 32/                                                          2   60
C                                                                            2   61
C        DETECT8R AND C8MMUNICATIONS FAILURE DETECTION R8UTINE               2   62
C                                                                            2   63
      IF(IMIBE.NE.0) RETURN                                                  2   64
      NI = 1                                                                 2   65
   10 C8NTINUE                                                               2   66
      D8 210 INDEX=1,17                                                      2   67
C                                                                            2   68
C        IS A CYCLE START FLAG SET                                           2   69
C                                                                            2   70
      IF(KCSF(INDEX).EQ.0) G8 T8 210                                         2   71
      KCSF(INDEX) = 0                                                        2   72
      IA = NDMAX                                                             2   73
   40 C9NTINUE                                                               2   74
      CALL HALF(DWL,IA,IL)                                                   2   75
      IL=IL+1                                                                2   76
      CALL GETBY(LCCRT,IL,IC)                                                2   77
      IC=IC+1                                                                2   78
      CALL GETBY(CYCLC,IC,IB)                                                2   79
      IB = IB + 1                                                            2   80
      CALL GETBY(NDLNK,IL,ND)                                                2   81
      CALL GETBY(N08L,IL,NI)                                                 2   82
      IF(NI.EQ.0) G8 T8 45                                                   2   83
      IF(INDEX.EQ.IB) G9 T8 50                                               2   84
   45 C9NTINUE                                                               2   85
      IA = IA + ND                                                           2   86
      IF(IA.GT.0) G8 T8 40                                                   2   87
      G8 T8 210                                                              2   88
   50 C9NTINUE                                                               2   89
      CALL PT8Y(DFAIL,IL,0)                                                  2   90
   60 C8NTINUE                                                               2   91
                                                                             2   92
C                                                                            2   93
C        8RANCH IF THIS IS A DUMMY DETECT8R                                  2   94
C                                                                            2   95
      CALL GETBI(DWLP,IA,IDWLP,0)
```

```
      IF(IOWLP.EQ.1) GO TO 100                                          2   96
      CALL GETBI(DMALF,IA,IDMAL,                                        2   97
      CALL GETBI(D0F,IA,I08F,0)                                         2   98
      CALL GETBI(DIS,IA,IOIS,0)                                         2   99
      CALL GETBI(CMMAL,IA,ICMMF,0)                                      2  100
C                                                                       2  101
C        CHECK DETECTOR AND COMMUNICATION FAILURE FLAGS                 2  102
C                                                                       2  103
      IF(IDMAL+IO9F+IOIS+ICMMF.NE.0) GO TO 80                           2  104
      IF(TSTRT(IA).LT.0) GO TO 180                                      2  105
C                                                                       2  106
C        PROCESS END OF PULSE                                           2  107
C                                                                       2  108
      GAP = RTC - TSTRT(IA)                                             2  109
      IF(GAP.GE.0) GO TO 70                                             2  110
C                                                                       2  111
C        COMPENSATE FOR RTC BEING RESET                                 2  112
C                                                                       2  113
      GAP = GAP + IGPI                                                  2  114
C                                                                       2  115
C        BRANCH IF GAP .LE. 180  (5760 * 180*2**5) SCALED BS            2  116
C                                                                       2  117
   70 CONTINUE                                                          2  118
      IF(GAP.LE.11520) GO TO 150                                        2  119
      CALL HALF(IVMIST,IL,IVMST)                                        2  120
C ******** USE NOMINAL 250 VPH (SCALED 8)                              2  121
      IF(IVMST.LE.0) IVMST=500                                          2  122
C                                                                       2  123
      ITEMP = M1*3600/IVMST                                             2  124
      IF(GAP.LE.ITEMP) GO TO 150                                        2  125
      CALL GETBI(MD0F,IA,IP08F,0)                                       2  126
      IF(IP08F.EQ.0) GO TO 130                                          2  127
C                                                                       2  128
C        CLEAR POSSIBLE DETECTOR OBSTRUCTION FLAG                       2  129
C                                                                       2  130
      CALL PTBI(PD0F,IA,0,0)                                            2  131
      CALL PTBI(D9F,IA,1,0)                                             2  132
   80 CONTINUE                                                          2  133
C                                                                       2  134
C        SET DETECTOR FAILURE FLAG                                      2  135
C                                                                       2  136
      CALL PTBY(DFAIL,IL,1)                                             2  137
      TMDEF = 1                                                         2  138
   90 CONTINUE                                                          2  139
C                                                                       2  140
C        ZERO OUT CAR COUNT, RAW SPEED, AND RAW OCCUPANCY               2  141
C                                                                       2  142
      CALL PTBY(CC2,IA,0)                                               2  143
      CALL PTHLF(RAWSP,IA,0)                                            2  144
      CALL PTHLF(RAWOC,IA,0)                                            2  145
  100 CONTINUE                                                          2  146
      IA = IA + 1                                                       2  147
      NO = NO - 1                                                       2  148
      IF(NO.GT.0) GO TO 60                                              2  149
      IF(TMDEF.NE.0)GO TO 120                                           2  150
      CALL GETBY(MDEIF,IL,MDEF)                                         2  151
      IF(MDEF.EQ.0) GO TO 110                                           2  152
      MDEF = MDEF - 1                                                   2  153
      CALL PTBY(MDEIF,IL,MDEF)                                          2  154
  110 CONTINUE                                                          2  155
      CALL RTNF                                                         2  156
      RLNK0 = 0                                                         2  157
      RLNKC = 0                                                         2  158
      LNKSP = 0                                                         2  159
      IF(IA.GT.0) GO TO 40                                              2  160
      GO TO 210                                                         2  161
C                                                                       2  162
C        TMDEF HAS BEEN SET INDICATING INOPERATIVE DETECTOR ON LINK     2  163
C                                                                       2  164
  120 CONTINUE                                                          2  165
      TMDEF = 0                                                         2  166
      CALL PTBY(MDEIF,IL,2)                                             2  167
      GO TO 110                                                         2  168
  130 CONTINUE                                                          2  169
C                                                                       2  170
C        SET DETECTOR COMMUNICATION MALFUNCTION FLAG AND RECORD DETECTOR 2  171
C        NUMBER                                                         2  172
C                                                                       2  173
      CALL PTBI(CMMAL,IA,1,0)                                           2  174
      CALL PTHLF(CMTAB,CMLNG+1,IA)                                      2  175
      CMLNG = CMLNG + 1                                                 2  176
      GO TO 80                                                          2  177
  140 CONTINUE                                                          2  178
C                                                                       2  179
C        BRANCH IF CONTROLLER IS UNDER COMPUTER CONTROL                 2  180
C                                                                       2  181
      CALL GETBI(MHLD,IC,IMHLD,1)                                       2  182
      IF(IMHLD.EQ.1) GO TO 90                                           2  183



      TMDEF = 1                                                         2  184
      GO TO 90                                                          2  185
  150 CONTINUE                                                          2  186
C                                                                       2  187
C        CHECK CAR COUNT FOR BEING GREATER THAN MAX POSSIBLE FROM A      2  188
C        NORMAL DETECTOR                                                2  189
C                                                                       2  190
      CALL GETBY(CC2,IA,ICC2)                                           2  191
      IF(ICC2.LE.NCT) GO TO 170                                         2  192
  160 CONTINUE                                                          2  193
C                                                                       2  194
C        CLEAR POSSIBLE DETECTOR OBSTRUCTION FLAG AND SET DETECTOR      2  195
C        MALFUNCTION FLAG                                               2  196
C                                                                       2  197
```

```
      CALL PTBI(PUBF,IA,0,C)                                              2  198
      CALL PTBI(OMALF,IA,1,C)                                             2  199
      CALL PTHLF(DTTAB,DTL +1,IA)                                         2  200
      DTLNG = DTLNG + 1                                                   2  201
      GO TO 20                                                            2  202
  170 CONTINUE                                                            2  203
C                                                                         2  204
C        CALCULATE MAX LINK COUNT, LINK SPEED, AND MAX OCCUPANCY          2  205
C                                                                         2  206
      CALL GETBY(ICC2,IA,ICC2)                                            2  207
      RLNKC = RLNKC + ICC2                                                2  208
      CALL HALF(MAXSP,IA,IRSMP)                                           2  209
      LNKSP = LNKSP + IRSMP                                               2  210
      CALL HALF(MAXOC,IA,IROC)                                            2  211
      RLNKO = RLNKO + IROC/16                                             2  212
      GO TO 190                                                           2  213
C                                                                         2  214
C        PROCESS BEGINNING OF PULSE                                       2  215
C                                                                         2  216
  180 CONTINUE                                                            2  217
      ISTRT = TSTRT(IA)                                                   2  218
      CALL PTBI(ISTRT,1,0,C)                                              2  219
      IPLS = RTC - ISTRT                                                  2  220
      IF(IPLS.GE.0) GO TO 190                                             2  221
C                                                                         2  222
C        COMPENSATE FOR RTC BEING RESET                                   2  223
C                                                                         2  224
      IPLS = IPLS + IGPI                                                  2  225
C                                                                         2  226
C        SEE IF PULSE IS WITHIN UPPER AND LOWER TIME LIMITS               2  227
C                                                                         2  228
  190 CONTINUE                                                            2  229
      IF(IPLS.LE.TT3) GO TO 200                                           2  230
      IF(IPLS.GT.TT7) GO TO 160                                           2  231
C                                                                         2  232
C        SET POSSIBLE DETECTOR OBSTRUCTION FLAG                           2  233
C                                                                         2  234
      CALL PTBI(PUBF,IA,1,C)                                              2  235
      GO TO 170                                                           2  236
  200 CONTINUE                                                            2  237
C                                                                         2  238
C        CLEAR POSSIBLE DETECTOR OBSTRUCTION FLAG                         2  239
C                                                                         2  240
      CALL PTBI(PUBF,IA,0,0)                                              2  241
      GO TO 150                                                           2  242
  210 CONTINUE                                                            2  243
C                                                                         2  244
C        EXIT PROCESSING                                                  2  245
C                                                                         2  246
      ENTFL(2) = DTLNG                                                    2  247
      IF(DTLNG.NE.0) GO TO 220                                            2  248
      ENTFL(3) = CMLNG                                                    2  249
      IF(CMLNG.NE.0) GO TO 230                                            2  250
      RETURN                                                              2  251
  220 CONTINUE                                                            2  252
      ENTFL(3) = CMLNG                                                    2  253
C                                                                         2  254
C        SET FLAG FOR SCHEDULING MASK                                     2  255
C                                                                         2  256
  230 CONTINUE                                                            2  257
      IF (DTLNG+CMLNG .GT. 0)  MAST(KMAST) = 1                            2  258
      RETURN                                                              2  259
      END                                                                 2  260
```

2.6.13 ROUTINE F

```
ROUTINE: RTNF

C   *   RTNF                                                              3    1
      SUBROUTINE RTNF                                                     3    2
C**** ROUTINE F   LINK VOLUME, OCCUPANCY AND SPEED EVALUATION.            3    3
      INTEGER AMCC, AMCCW, AMIST, AMSTW, DFAIL, DFALW,                    3    4
     1        BACC, BACCW, PCBT , RLNKC, RLNKB, SACC , SACCW,              3    5
     2        SBAR, SBARW, TEMP1, TEMP2, VACC , VACCW, VMIST, VMSTW,       3    6
     3        VBL , VBLW , VPHT                                           3    7
      COMMON /BLK14/  CLENG       , DTLNG       , CMLNG       ,           3    8
     * DUMY1, DUMY2, CNTLN(372),ENTFL(5),                                 3    9
     * KCL(17), KCTF(17), KCSF(17),                                       3   10
     * NMVAR(31)    , SEMSK(8)     , VRINT(123)  , LNKPT(64)             3   11
      COMMON /BLK19/ CC2(129), DFAIL(69), DBF(17),                        3   12
     * NI(31)       , RAWBC(258)   , RAWSP(258)  , RTC          ,        3   13
     * TSTRT(516)                                                        3   14
      COMMON /BLK23/  EXTGF(9)     , IMIBE       , LNKSP       ,         3   15
     * NI, BACC(138), RLNKC, RLNKB, SACC(138), STPTM, VACC(138),         3   16
     *TRJFF(1655)                                                       3   17
      COMMON /BLK24/ AMIST(138), CNDIS, DCF,                              3   18
     * DBW          , FMTBD       , FSTFL       , HLIOF       ,         3   19
     * HLIDT(96)    , NHDAY       , PRCBD       , PTN(745)    ,         3   20
     * SMTFL, SRDIS, THRSH, VMIST(138)                                   3   21
      COMMON /BLK25/ AMCC(138), CMMAL(17), CMTAB(258),                    3   22
     * DTTAB(258)   , DIS(17)     , DMALF(17)   , DMBDE       ,         3   23
     * FLTAB(800)   , HRF         , MBDES       , NAI         ,         3   24
     * NBFAL, SBAR(69), SECFC(4), SCDFC(4), VBL(138)                     3   25
      COMMON/FANDM/  KV1, LLBN, N                                         3   26
      COMMON /RTNEF/ IB, IL                                               3   27
      DATA KV1, KVPH, KPCB, KSP                                           3   28
     X    / 45,    1,    1,   1/                                         3   29
C           2D HEX                                                        3   30
      DATA N, LLBN /64, 1199/                                             3   31
C                  64*1199 = 76736 = 12BC0 HEX = 1*1709 AT B16          3   32
      CALL GETBY(DFAIL,IL,DFALW)                                          3   33
      IF(DFALW.EQ.0) GO TO 2                                              3   34
 1    CONTINUE                                                            3   35
C**** HERE IF EITHER A FAILURE IS PRESENT ON LINK OR FAILURE WAS          3   36
C     CORRECTED ONLY FOR ONE CYCLE.                                       3   37
      CALL HALF(VMIST,IL,VMSTW)                                           3   38
      CALL PTHLF(VBL,IL,VMSTW)                                            3   39
      CALL HALF(VACC,IL,VACCW)                                            3   40
      VACCW = (KCL(IB)*VMSTW)/14400 + VACCW                               3   41
      CALL PTHLF(VACC,IL,VACCW)                                           3   42
      CALL HALF(AMIST,IL,AMSTW)                                           3   43
      CALL PTHLF(AMCC,IL,AMSTW)                                           3   44
      CALL HALF(BACC,IL,BACCW)                                            3   45
      BACCW = AMSTW*KCL(IB)/2**11 + BACCW                                 3   46
      CALL PTHLF(BACC,IL,BACCW)                                           3   47
      TEMP1 = 16384/AMSTW                                                 3   48
      TEMP2 = VMSTW*KV1/3600                                              3   49
      SBARW = TEMP1*TEMP2                                                 3   50
      CALL PTBY(SBAR,IL,SBARW)                                            3   51
      CALL HALF(SACC,IL,SACCW)                                            3   52
      TEMP1 = (16384/AMSTW)*(16384/N)*KCL(IB)*NI/LLBN                     3   53
      SACCW = TEMP1*TEMP2 + SACCW                                         3   54
      CALL PTHLF(SACC,IL,SACCW)                                           3   55
      GO TO 3                                                             3   56
C**** HERE IF NO FAILURE WAS PRESENT FOR MORE THAN ONE CYCLE.             3   57
 2    CONTINUE                                                            3   58
      CALL HALF(VACC,IL,VACCW)                                            3   59
      VPHT = RLNKC/NI                                                     3   60
      VACCW = VACCW + VPHT                                                3   61
      CALL PTHLF(VACC,IL,VACCW)                                           3   62
      PCBT = (RLNKB/NI)*(16384/N)*256 /LLBN                               3   63
      CALL HALF (BACC,IL,BACCW)                                           3   64
      BACCW = BACCW + PCBT/4                                              3   65
      CALL PTHLF(BACC,IL,BACCW)                                           3   66
      CALL HALF(SACC,IL,SACCW)                                            3   67
      SACCW = SACCW + LNKSP                                               3   68
      CALL PTHLF(SACC,IL,SACCW)                                           3   69
      CALL HALF(VBL,IL,VBLW)                                              3   70
      VBLW = VBLW +((14400/KCL(IB) * VPHT - VBLW)/2 * KVPH)/2             3   71
      CALL PTHLF(VBL,IL,VBLW)                                             3   72
      CALL HALF(AMCC,IL,AMCCW)                                            3   73
      AMCCW = AMCCW +((PCBT/KCL(IB) * 512 - AMCCW)/2 * KPCB)/2            3   74
      CALL PTHLF(AMCC,IL,AMCCW)                                           3   75
      IF(RLNKC.EQ.0) GO TO 3                                              3   76
      TEMP1 = (LNKSP*KV1)/(RLNKC*256) * (LLBN/64)                         3   77
      CALL GETBY(SBAR,IL,SBARW)                                           3   78
      SBARW = SBARW + (TEMP1 - SBARW)/2 * KSP                             3   79
      CALL PTBY(SBAR,IL,SBARW)                                            3   80
 3    CONTINUE                                                            3   81
      RETURN                                                              3   82
      END                                                                 3   83
```

2.6.14 ROUTINE H

```
ROUTINE:  RTNH

C     *   RTNH                                                                16    1
          SUBROUTINE RTNH                                                     16    2
C         RTNH IS THE CONTROL OF ALL 'H' SUBROUTINES                          16    3
C                                                                             16    4
C         INPUT                                                               16    5
C                                                                             16    6
C         OUTPUT                                                              16    7
C           NONE                                                              16    8
C                                                                             16    9
          INTEGER BIND ,CTABL,DATE ,DBUF ,FMTBD,HD11 ,HD21 ,HD31 ,HD41 ,      16   10
         1        HMAST,PAGNM,PRTFL,PRVD,RTNHC,SMTFL,TIME ,TBSU               16   11
          INTEGER HRF                                                         16   12
          DIMENSION  TIME(4)  ,CTABL(220),   DBUF(31)                         16   13
         1,HD11(12),  HD21(9),     HD31(8),   HD41(9)                       16   14
          COMMON/HDDS/HD11,HD21                                               16   15
          COMMON /HSUB1/ TIME                                                 16   16
          COMMON/HSUB2/BIND,CTABL,IBL                                         16   17
          COMMON/HSUB3/IBLNK,IT15                                             16   18
          COMMON /HSUB4/ IBR,IBPF,ITINDX,IDCT                                 16   19
          COMMON/MESAG/IBNDX,LCNT,IR1                                         16   20
          COMMON/HBLK1/PAGNM                                                  16   21
          COMMON/HBLK3/RTNHC                                                  16   22
          COMMON /BLK6 /  FMC         ,  FMARK       ,  MAST(9)      ,      16   23
         * MMAST       ,  JMAST       ,  KMAST       ,  EMAST       ,      16   24
         * MMAST       ,  WMAST       ,  QMAST       ,  IMAST       ,      16   25
         * SPACE       ,  MPBKY       ,  QCNT                               16   26
          COMMON /BLK11/  MS615(32)    ,  IG15(64)    ,  KA          ,      16   27
         2 LNKDI(64),ND0L(69),N0NCS,N0CNT(4),                                 16   28
         * TBSU                                                               16   29
          COMMON /BLK12/ D(138), DAYWK, JJ,                                   16   30
         * LNKSI(3) ,   PATNM(3),  PMTFL ,  SCNSI(2),                        16   31
         * SCCNT(29),SSFW                                                     16   32
          COMMON /BLK24/ AMIST(138), CNDIS, DCF,                              16   33
         * DBW         ,  FMTBD       ,  FSTFL       ,  HLIDF       ,      16   34
         * HLIDT(96)   ,  NHDAY       ,  PRCBD       ,  PTN(745)    ,      16   35
         * SMTFL, SRDIS, THRSH, VHIST(138)                                    16   36
          COMMON /BLK25/ AHCC(138), CMMAL(17), CMTAB(258),                    16   37
         * DTTAB(258), DIS(17), DMALF(17), DMODE,                            16   38
         * FLTAB(80D), HRF, MODES, NAI,                                       16   39
         * NOFAL, SBAR(69), SECFC(4), SCDFC(4), VBL(138)                      16   40
          COMMON /BLK26/  DATE(3)      ,  PRVD(3)     ,  LPBUF(1806)         16   41
          EQUIVALENCE(DBUF(1),LPBUF(1766))                                    16   42
          DATA HD31/'  CH','ANGE','S SI','NCE ','LAST',' REP','ORT ','    '/ 16   43
          DATA HD41/'TIME',',   ','TYPE',',   N','UMBE','R   ',',   C','HANG',16   44
         1'E   '/                                                             16   45
C         BRANCH TO RTNH ENTRY POINT                                          16   46
          GO TO 80                                                            16   47
        1 CONTINUE                                                            16   48
C         GET DATE AND TIME                                                   16   49
          CALL TIMEH(TIME)                                                    16   50
          DO 3 I=1,3                                                          16   51
          PRVD(I) = HD21(I+2)                                                 16   52
          HD21(I+2) = TIME(I)                                                 16   53
C         STORE PREVIOUS DATE AND PUT CURRENT DATE IN HD21                    16   54
        3 CONTINUE                                                            16   55
          HD21(9) = TIME(4)                                                   16   56
C         SET BRANCH INDICATOR                                                16   57
          GO TO (5,7),IBR                                                     16   58
        5 CONTINUE                                                            16   59



C         SAVE TIME OF START UP                                               16   60
          TBSU = TIME(4)                                                      16   61
          IBR = 2                                                             16   62
        7 CONTINUE                                                            16   63
C         TEST FOR FORCED PRINTOUT                                            16   64
          IF(MPBKY.NE.0) GO TO 20                                             16   65
          IF(PRTFL.NE.0) GO TO 20                                             16   66
          BIND=2                                                              16   67
          GO TO 101                                                           16   68
       10 CONTINUE                                                            16   69
C         SET BRANCH INDICATOR FOR LINKDAT                                    16   70
          BIND = 7                                                            16   71
          GO TO 90                                                            16   72
       20 CONTINUE                                                            16   73
C         DEDICATE LINE PRINTER                                               16   74
          IF(IDCT.NE.0) GO TO 201                                             16   75
          IDCT=1                                                              16   76
          CALL CAL15                                                          16   77
C         TEST STATE OF LINE PRINTER                                          16   78
      201 CONTINUE                                                            16   79
          CALL TSTLP(IERR)                                                    16   80
          IF(IERR.EQ.1) GO TO 10                                              16   81
          IF(IBPF.NE.0) GO TO 25                                              16   82
          CALL BLT2G(ITINDX,IBPF)                                             16   83
          RETURN                                                              16   84
       25 CONTINUE                                                            16   85
C         ZERO PAGE NUMBER AND LINE COUNT                                     16   86
          IDCT=0                                                              16   87
          PAGNM = 0                                                           16   88
          LCNT = 0                                                            16   89
          BIND = BIND + 1                                                     16   90
C         TEST FOR ANY ENTRIES                                                16   91
          IF(IBL.NE.0) GO TO 30                                               16   92
          BIND = BIND + 1                                                     16   93
          GO TO 101                                                           16   94
C                                                                             16   95
```

```
C        CHANGES SINCE LAST REPORT                                      16   96
C                                                                       16   97
   30 CONTINUE                                                          16   98
      CALL MHEAD                                                        16   99
   50 CONTINUE                                                          16  100
      IR1 = IR1 + 52                                                    16  101
C     STORE 3RD LINE OF HEADER  *                                       16  102
      IOPT = 2                                                          16  103
      NBYTE = 31                                                        16  104
      CALL STMSG(IOPT,IBNDX,LCNT,IR1,MD31,NBYTE)                        16  105
      IOPT = 4                                                          16  106
      CALL STMSG(IOPT,IBNDX,LCNT,IR1,MD31,NBYTE)                        16  107
      IR1 = IR1 + 8                                                     16  108
C     STORE 4TH LINE OF HEADER                                          16  109
      NBYTE = 36                                                        16  110
      IOPT = 2                                                          16  111
      CALL STMSG(IOPT,IBNDX,LCNT,IR1,MD41,NBYTE)                        16  112
      IOPT = 4                                                          16  113
      CALL STMSG(IOPT,IBNDX,LCNT,IR1,MD41,NBYTE)                        16  114
C     INITIALIZE CHANGE TABLE INDEX                                     16  115
      IR5 = 0                                                           16  116
   60 CONTINUE                                                          16  117
      DBUF(1) = CTABL(IR5+1)                                            16  118
      DBUF(3) = CTABL(IR5+2)                                            16  119
      DBUF(5) = CTABL(IR5+3)                                            16  120
      DBUF(8) = CTABL(IR5+4)                                            16  121
      DBUF(9) = CTABL(IR5+5)                                            16  122
      CALL PTBY(LPBUF,IR1,IT15)                                         16  123
      IR1 = IR1 + 8                                                     16  124
      NBYTE = 36                                                        16  125
      IOPT = 2                                                          16  126
C     STORE CHANGE INFORMATION                                          16  127
      CALL STMSG(IOPT,IBNDX,LCNT,IR1,DBUF,NBYTE)                        16  128
C     INCREMENT CHANGE TABLE(CTABL) INDEX                               16  129
      IR5 = IR5 + 5                                                     16  130
      IBL = IBL - 1                                                     16  131
C     TEST AND BRANCH IF MORE CHANGES                                   16  132
      IF(IBL.NE.0) GO TO 60                                             16  133
C     PRINT PAGE                                                        16  134
      CALL PRNTF(LCNT)                                                  16  135
C     SET SERVICE FLAG                                                  16  136
      MAST(MLAST) = 2                                                   16  137
C     TEST FOR FORCED PRINTOUT                                          16  138
      IF(MPBKY.NE.0) GO TO 70                                           16  139
      BIND = BIND + 1                                                   16  140
      RETURN                                                            16  141
   70 CONTINUE                                                          16  142
      MPBKY = MPBKY - 1                                                 16  143
C     SET BRANCH INDICATOR FOR EXIT                                     16  144
      BIND = 8                                                          16  145
      RETURN                                                            16  146
C THIS  IS FIRST ENTRY. SET IR1 TO  CLEAR LPBUF                         16  147
   80 CONTINUE                                                          16  148
      DO 85 I=1,1806                                                    16  149
      LPBUF(I) = IBLNK                                                  16  150
   85 CONTINUE                                                          16  151
      IR1 = 1                                                           16  152
      GO TO 100                                                         16  153
C     NORMAL ENTRY TO ROUTINE                                           16  154
   90 CONTINUE                                                          16  155
C     CLEAR 1ST FOUR LINES                                              16  156
      IOPT = 5                                                          16  157
      IR1 = 532                                                         16  158
      CALL STMSG(IOPT,IBNDX,LCNT,IR1,DBUF,NBYTE)                        16  159
  100 CONTINUE                                                          16  160
C     INITIALIZE PARAMETERS                                             16  161
      IBNDX = 1                                                         16  162
      IR15 = 192                                                        16  163
      LCNT = 0                                                          16  164
C     SET INDEX FOR RTNH END ACTION                                     16  165
      RTNHC = 0                                                         16  166
  101 CONTINUE                                                          16  167
      GO TO(1,102,103,104,105,106,107,108),BIND                         16  168
  102 CONTINUE                                                          16  169
C     RETURN HERE IF PRINTOUT IS SUPPRESSED                             16  170
      CALL LADAT(IRET)                                                  16  171
      IF(IRET.EQ.1) RETURN                                              16  172
      IF(IRET.EQ.10) GO TO 108                                          16  173
  103 CONTINUE                                                          16  174
C     SET JOPT FOR FAILURE STATUS PAGE                                  16  175
      JOPT = 1                                                          16  176
      CALL STAT(JOPT,IRET)                                              16  177
      IF(IRET.EQ.2) GO TO 90                                            16  178
      IF(IRET.GT.0) RETURN                                              16  179
  104 CONTINUE                                                          16  180
C     SET JOPT FOR CONTROLLER STATUS PAGE                               16  181
      JOPT = 2                                                          16  182
      CALL STAT(JOPT,IRET)                                              16  183

      IF(IRET.EQ.2) GO TO 90                                            16  184
      IF(IRET.GT.0) RETURN                                              16  185
  105 CONTINUE                                                          16  186
C     SET JOPT FOR DETECTOR STATUS PAGE                                 16  187
      JOPT = 3                                                          16  188
      CALL STAT(JOPT,IRET)                                              16  189
      IF(IRET.EQ.2) GO TO 90                                            16  190
      IF(IRET.GT.0) RETURN                                              16  191
  106 CONTINUE                                                          16  192
C     SET JOPT FOR SYSTEM STATUS PAGE                                   16  193
      JOPT = 4                                                          16  194
      CALL STAT(JOPT,IRET)                                              16  195
      IF(IRET.EQ.2) GO TO 90                                            16  196
      IF(IRET.GT.0) RETURN                                              16  197
```

```
  107 CONTINUE                                                          16  198
C     LINK DATA PAGE                                                    16  199
      CALL LADAT(IRET)                                                  16  200
      IF(IRET.EQ.1) RETURN                                              16  201
  108 CONTINUE                                                          16  202
C        OUTPUT MBE TAPE                                                16  203
      CALL OUTAP(IERR)                                                  16  204
  110 CONTINUE                                                          16  205
C     RESET BRANCH INDEX                                                16  206
      BIND = 1                                                          16  207
C     SET INDEX FOR RTNI END ACTION                                     16  208
      RTNMC = 1                                                         16  209
C     RELEASE LINE PRINTER                                              16  210
      CALL CALRL                                                        16  211
      ISPF=0                                                            16  212
      MAST(MMAST)=0                                                     16  213
C     SCHEDULE RTN I IF MIDNIGHT                                        16  214
      IF(FMT6D.EQ.0) GO TO 120                                          16  215
C     TEST FOR SHUTDOWN                                                 16  216
      IF(SHTFL.EQ.0) RETURN                                             16  217
  120 CONTINUE                                                          16  218
C     SCHEDULE ROUTINE I                                                16  219
      MAST(IMAST) = 1                                                   16  220
      RETURN                                                            16  221
      END                                                               16  222
```

2.6.15 SUBROUTINE CAL15

```
ROUTINE:  CAL15,STLP

     *  *  CAL15,STLP                                                  14    1
          DEF       CAL15                                             14    2
     *    THIS ROUTINE INITIATES STOP I/O FOR LINE PRINTER             14    3
          DEF       STLP                                              14    4
          REF       MILB                                              14    5
     CAL15  RES     0                                                 14    6
          CAL1,5    STLP                                              14    7
          B         *15                                               14    8
     STLP  GEN,8,7,17  X'0E',8,WA(MILB)                                14    9
          END                                                          14   10
```

2.6.16 SUBROUTINE CALRL

```
ROUTINE:  CALRL,STRLP

      *   *   CALRL,STRLP                                          15    1
                DEF         CALRL                                  15    2
          *     THIS ROUTINE RELEASES LINE PRINTER I/O             15    3
                DEF         STRLP                                  15    4
                REF         M:L0                                   15    5
          CALRL RES         0                                      15    6
                CAL1,5      STRLP                                  15    7
                b           *15                                    15    8
          STRLP GEN,8,24    X'0F',,A(M:L0)                         15    9
                END                                                15   10
```

2.6.17 SUBROUTINE DECON

```
ROUTINE:  DECON

C   *   DECON                                                                30    1
      SUBROUTINE DECON(NUM,ISF,IVAL)                                         30    2
C     THIS SUBROUTINE TAKES A SCALED BINARY NUMBER AND CONVERTS TO A         30    3
C     WHOLE NUMBER, THEN CONVERTS THE NUMBER TO COMPUTER CODE WITH A         30    4
C     PERIOD IN LAST BYTE.                                                   30    5
C               CONVERTED NUMBER IS STORED IN THE FIRST SEVEN BYTES WITH     30    6
C               A PERIOD(.) IN THE EIGHTH BYTE.                              30    7
C                                                                            30    8
C     INPUT                                                                  30    9
C       NUM   = SCALED BINARY NUMBER                                         30   10
C       ISF   = BINARY SCALE FACTOR                                          30   11
C                                                                            30   12
C     OUTPUT                                                                 30   13
C       IVAL  = CONVERTED COMPUTER CODE FORM SCALED BINARY NUMBER. THE       30   14
C               RIGHTMOST CHARACTER IS A PERIOD.                             30   15
      INTEGER CHSET                                                          30   16
      REAL JPER                                                              30   17
      DIMENSION IVAL(4)                                                      30   18
      COMMON /BLK15/  CHSET       ,  NBUFL       ,  IGPI        ,          30   19
     * MNUMF        ,  NBYCH       ,  NCW22       ,  NCAD2       ,          30   20
     * NCWRD        ,  NMANP       ,  NMCTL       ,  NMLNK       ,          30   21
     * NMSCT        ,  NMVED       ,  NPATB       ,  NPB4        ,          30   22
     * NRESP        ,  NSTM1       ,  TBSIZ       ,  TBYTE       ,          30   23
     * CS           ,  DS          ,  FS          ,  NS          ,          30   24
     * QS           ,  RS          ,  SS          ,  SCS                    30   25
      EQUIVALENCE (IPER,JPER)                                                30   26
      DATA JPER/'000.'/                                                      30   27
      IV = 0                                                                 30   28
C     CALCUTE ROUNDOFF CONSTANT AND ADD TO BINARY NUMBER                     30   29
      NUM = 10*NUM + 2**(ISF-1)                                              30   30
      NUM = NUM/2**ISF                                                       30   31
C     CONVERT BINARY NUMBER(NOW SCALED TO BE) TO COMPUTER CODE.              30   32
      CALL EISRT(NUM,IVAL)                                                   30   33
C     SHIFT THE FIRST EIGHT BYTES ONE BYTE TO THE LEFT AND PLACE A           30   34
C     PERIOD(.) IN THE EIGHTH BYTE.                                          30   35
      DO 30 J=1,6                                                            30   36
      K = J+1                                                                30   37
      CALL GETBY(IVAL,K,L)                                                   30   38
      CALL PTBY(IVAL,J,L)                                                    30   39
   30 CONTINUE                                                               30   40
      CALL GETBY(JPER,4,ITEMP)                                               30   41
      CALL PTBY(IVAL,7,ITEMP)                                                30   42
      RETURN                                                                 30   43
      END                                                                    30   44
```

2.6.18 SUBROUTINE E1SRT

```
ROUTINE: E1SRT
C
C   *   E1SRT                                                          46    1
      SUBROUTINE E1SRT(INUM,IVAL)                                      46    2
C     THIS SUBROUTINE CONVERTS A BINARY NUMBER TO ASCII OR EBCDIC CODE. 46    3
C     THE CONVERTED NUMBERS ARE STORED INTO THE ARRAY IVAL BEGINNING   46    4
C     WITH THE EIGHT BYTE IN THE ARRAY AND ARE STORED IN REVERSE ORDER 46    5
C     WITH THE NEXT CHARACTER IN THE SEVENTH BYTE AND SO ON. THE FINAL 46    6
C     RESULT WILL BE THE CONVERTED NUMBER STORED RIGHT ADJUSTED IN THE 46    7
C     FIRST EIGHT BYTES OF THE ARRAY.                                  46    8
C                                                                      46    9
C     INPUTS                                                           46   10
C       CHSET = 3D DEFINES ASCII CHARACTER SET.                        46   11
C       CHSET = F0 DEFINES EBCDIC CHARACTER SET.                       46   12
C       NBMCH = 16 DEFINES 16-BIT MACHINE.                             46   13
C       NBMCH = 24 DEFINES 24-BIT MACHINE.                             46   14
C       NBMCH = 32 DEFINES 32-BIT MACHINE.                             46   15
C       NUM   = BINARY NUMBER SCALED AT 0D.                            46   16
C                                                                      46   17
C     OUTPUTS                                                          46   18
C       IVAL  = CONVERTED CHARACTERS FROM BINARY NUMBER. THE CHARACTERS 46   19
C               ARE BYTES RIGHT ADJUSTED IN THE ARRAY.                 46   20
      INTEGER CHSET                                                    46   21
      DIMENSION IVAL(4)                                                46   22
      COMMON /BLK15/  CHSET       , HBUFL       , IGPI        ,        46   23
     * MNUMF        , NBMCH       , NCW22       , NCW02       ,        46   24
     * NCWRD        , NMANP       , NMCTL       , NMLNK       ,        46   25
     * NMSCT        , NMVED       , NPATB       , NPB4        ,        46   26
     * NRESP        , NSTM1       , TBSIZ       , TBYTE       ,        46   27
     * CS           , DS          , FS          , NS          ,        46   28
     * QS           , RS          , SS          , SCS                  46   29
      DATA IBLNK/'    '/                                               46   30
      NUM = INUM                                                       46   31
      DO 5 I=1,4                                                       46   32
      IVAL(I) = IBLNK                                                  46   33
    5 CONTINUE                                                         46   34
C     SET INITIAL IVAL BYTE LOCATION                                   46   35
      L = 8                                                            46   36
      IF(NUM.GT.9) GO TO 10                                            46   37
C     NUMBER IS SINGLE DIGIT. CONVERT TO ASCII OR EBCDIC CODE DETERMINED 46   38
C     BY VALUE OF CHSET.                                               46   39
      NUM = NUM + CHSET                                                46   40
      CALL PTBY(IVAL,L,NUM)                                            46   41
      GO TO 100                                                        46   42
   10 CONTINUE                                                         46   43
C     PERFORM CONVERSION                                               46   44
      I = NUM/10                                                       46   45
      J = NUM - 10*I + CHSET                                           46   46
C     STORE CONVERTED DIGIT                                            46   47
      CALL GETBY(J,4,ITMP)                                             46   48
      CALL PTBY(IVAL,L,ITMP)                                           46   49
C     TEST FOR COMPLETION OF CONVERSION.                               46   50
      IF(I.EQ.0) GO TO 100                                             46   51
      NUM = I                                                          46   52
      L = L - 1                                                        46   53
      GO TO 10                                                         46   54
  100 CONTINUE                                                         46   55
      RETURN                                                           46   56
      END                                                              46   57
```

2.6.19 SUBROUTINE LKDAT

ROUTINE: LKDAT

```
C  *   LKDAT                                                                  18    1
      SUBROUTINE LKDAT(IERT)                                                  18    2
      INTEGER MMAST                                                           18    3
      INTEGER AMIST,AVSP ,D    ,OBUF ,DELA ,DELP ,CFAIL,SACC ,SDAY ,          18    4
     1              BPC  ,SACC ,SDAY     ,TBUF ,TEMP ,TRTM ,TVPLS,          18    5
     2         VACC ,VDAY ,VMIST,XMAST,TBFPT,TBSIZ,HD12 ,HD22 ,HD32 ,         18    6
     3         HD42 ,HDS2 ,HD62 ,HD72 ,DELAY,PRTFL,STR  ,XTMP                 18    7
      INTEGER TIME,DATE,TBUFF,TEMP,BIND                                       18    8
      DIMENSION HD12(8)   ,HD22(6)   ,HD32(6)   ,HD42(7)   ,HDS2(18)   ,     18    9
     1                    HD62(7)   ,HD72(19)  ,DBUF(1)   ,TIME(4)          18   10
      DIMENSION IVAL(4),X(4)                                                  18   11
      COMMON /BLK6 /  FMC          ,  FMARK        ,  MAST(9)      ,          18   12
     * MMAST        ,  JMAST        ,  KMAST        ,  EMAST        ,         18   13
     * HMAST        ,  WMAST        ,  QMAST        ,  IMAST        ,         18   14
     * SPACE        ,  MPBKY        ,  QCNT                                  18   15
      COMMON /BLK11/  HSB1S(32)    ,  IG15(64)     ,  KW           ,          18   16
     2 LNKDI(64),ND8L(69),NBNCS,NBCNT(4),                                     18   17
     * TBSU                                                                   18   18
      COMMON /BLK12/ D(138), DAYWK, JJ,                                       18   19
     * LNKSI(3), MATNM(3), PRTFL, SCNSI(2) ,                                  18   20
     * SCCNT(29),SSF*                                                         18   21
      COMMON /BLK13/  DWL(259)     ,  DWLP(17)     ,  EBDC         ,          18   22
     1 FTAB, FTBWD, MBEIF(69)                                                 18   23
      COMMON /BLK15/  CMSET        ,  MBUFL        ,  IGPI         ,          18   24
     * NNUMF        ,  NBMCH        ,  NCW22        ,  NCWD2        ,         18   25
     * NCWRD        ,  NMANP        ,  NMCTL        ,  NMLNK        ,         18   26
     * NMSCT        ,  NMVED        ,  NPATB        ,  NPB4         ,         18   27
     * NMESP        ,  NSTM1        ,  TBSIZ        ,  TBYTE        ,         18   28
     * CS           ,  DS           ,  FS           ,  NS           ,         18   29
     * QS           ,  RS           ,  SS           ,  SCS                    18   30
      COMMON /BLK19/ CC2(129), DFAIL(69), DBF(17),                            18   31
     * MI(31)       ,  RAWBC(258)   ,  RAWSP(258)   ,  RTC          ,        18   32
     * TSTRT(516)                                                            18   33
      COMMON /BLK20/ AVSP, DLDAY(138), NSDAY(138), BDAY(138), BPC,            18   34
     1 BPT, SDAY(138), VDAY(138)                                              18   35
      COMMON /BLK23/  EXTGF(9)     ,  IMIBE        ,  LNKSP        ,          18   36
     * NI, SACC(138), RLNKC, RLNKB, SACC(138), STPTM, VACC(138),             18   37
     *TBUFF(1655)                                                            18   38
      COMMON /BLK24/ AMIST(138), CNDIS, DCF,                                  18   39
     * DBW          ,  FMTBD        ,  FSTFL        ,  HLIDF        ,        18   40
     * HLIDT(96)    ,  NHDAY        ,  PRCBD        ,  PTN(745)     ,        18   41
     * SMTFL, SRDIS, THRSH, VMIST(138)                                        18   42
      COMMON /BLK26/  DATE(3)      ,  PRVD(3)      ,  LPBUF(1906)            18   43
      COMMON/FANDM/  KW1, LL8N, NN8N                                          18   44
      COMMON/HSUB1/TIME                                                       18   45
      COMMON /HSUB2/ BIND, CTABL(220), IBL                                    18   46
      COMMON/HSUB3/IBLNK,IT15                                                 18   47
      COMMON /HSUB6/ KW2,TBFPT,DELA,DELP,NPAGE                                18   48
      COMMON/ESAB/IBNDX,LCNT,IR1                                              18   49
      COMMON/HBLK1/PAGNM                                                      18   50
      EQUIVALENCE(DBUF,LPBUF(1766))                                           18   51
      DATA STR/'+M  '/                                                        18   52
      DATA HD12/'UTCS',' SYS',' TEM ',' PERF',' BRMA',' NCE ',' REPR',' RT  '/ 18   53
      DATA HD22/' BUT',' BF ','    ',' HIS',' TBRY'/                          18   54
      DATA HD32/' CURR',' ENT ',' CUMU',' LATI',' VE M',' BE  '/              18   55
      DATA HD42/' TBLE',' RANC',' E   ','   VI',' BL  ',' B',' CC  '/         18   56
      DATA HDS2/' VAL ','    ','    ',' BLC ','    ','    ','    ','    ', 18   57
     1'    ','    ','   A',' V',' SP','.   ',' TRAV',' TIM',' E  ','    ','  18   58
     2  '/                                                                    18   59
```

```
      DATA HD62/' LINK',' NUM',' BER ','    (',' VEH)',' ','    (',' PCT)'/  18   60
      DATA HD72/' (VPH',')   ',' (PCT',')   ','    ','    ','    ','    ', 18   61
     1'    ','    ','    ',' (MPH',')   ',' (SE',' C/VE',' H)  ','    ','  18   62
     2  ','    '/                                                            18   63
C                                                                             18   64
C        LL = X'12BC0' BN 1.1709 SCALED B16                                   18   65
C                                                                             18   66
      LL = LL8N*NN8N                                                          18   67
      IERT = 0                                                                18   68
      IF(NPAGE.NE.0) GO TO 110                                                18   69
C     INITIALIZE TAPE BUFFER                                                  18   70
      DO 10 I=1,TBSIZ                                                         18   71
      TBUFF(I) = 0                                                            18   72
   10 CONTINUE                                                                18   73
      NBNT = 0                                                                18   74
C     DATE AND TIME FOR TAPE                                                  18   75
      DO 15 J=1,3                                                             18   76
      TBUFF(J) = DATE(J)                                                      18   77
   15 CONTINUE                                                                18   78
      TBUFF(4) = TIME(4)                                                      18   79
C     INITIALIZE TAPE INDEX(HW)                                               18   80
      INDEX = 9                                                               18   81
C     SET INHIBIT ROUTINE E FLAG                                              18   82
      IMIBE = IMIBE + 1                                                       18   83
      IR6 = 1                                                                 18   84
   20 CONTINUE                                                                18   85
C     GET NUMBER OF DETECTORS ON LINK                                         18   86
      NI=1                                                                    18   87
      IR12 = NI                                                               18   88
      CALL HALF(VACC,IR6,ITMP)                                                18   89
C     VDAY(KM1) = VDAY(KM1) + VACC(KM1)                                       18   90
      CALL HALF(VDAY,IR6,ITMX)                                                18   91
      ITMX = ITMX + ITMP                                                      18   92
      CALL PTHLF(VDAY,IR6,ITMX)                                               18   93
C     BDAY(KM1) = BDAY(KM1) + BPC                                             18   94
```

```
      CALL HALF(BACC,IR6,ITMP)                                          18   95
      IF(ITMP.LT.0) ITMP=0                                              18   96
      ITMP = ITMP/9                                                     18   97
      BPC = ITMP                                                        18   98
      ITMP = (ITMP+4)/8                                                 18   99
      CALL HALF(BDAY,IR6,ITMX)                                          18  100
      ITMP = ITMP + ITMX                                                18  101
      CALL PTHLF(BDAY,IR6,ITMP)                                         18  102
      AVSP = 0                                                          18  103
      TRTM = 0                                                          18  104
C     GET ACCUMULATED VOLUME                                            18  105
      CALL HALF(VACC,IR6,ITMP)                                          18  106
C     BRANCH IF NO VOLUME ON LINK                                       18  107
      IF(ITMP.EQ.0) GO TO 30                                            18  108
      ITMP = NI*ITMP                                                    18  109
      CALL HALF(SACC,IR6,ITMX)                                          18  110
      ITEMP = (ITMX*KV1)/ITMP                                           18  111
      ITEMP =(ITEMP*LLBN)/2**10                                         18  112
      AVSP =(ITEMP*NNBN)/2**9                                           18  113
      CALL HALF(SDAY,IR6,ITMP)                                          18  114
      ITMP = ITMP + AVSP                                                18  115
      CALL PTHLF(SDAY,IR6,ITMP)                                         18  116
      CALL HALF(D,IR6,ITMP)                                             18  117
      IDIV = (KV2*ITMP)/AVSP                                            18  118
      TRTM = IDIV/(2**9)                                                18  119
   30 CONTINUE                                                          18  120
      CALL HALF(AMIST,IR6,ITMP)                                         18  121
      ITMP = KA*ITMP/2**14                                              18  122
      CALL HALF(VMIST,IR6,ITMX)                                         18  123
      TVPLS = (ITMP+ITMX)/2                                             18  124
C     MVPLS = 4*VACC(KM1)*KA*BPC/3P                                     18  125
      JTMP = KA*BPC/32                                                  18  126
      CALL HALF(VACC,IR6,ITMP)                                          18  127
      MVPLS = JTMP + ITMP*4                                             18  128
      TEMP = IABS(MVPLS-TVPLS)                                          18  129
      IF(TEMP.LE.DELA) GO TO 90                                         18  130
      ATMP = DELP*TVPLS/2**16                                           18  131
      IF(TEMP.LE.XTMP) GO TO 90                                         18  132
      NBINT = NBINT + 1                                                 18  133
C     STORE LINK INFORMATION INTO TAPE BUFFER                           18  134
      IR1C = IR6                                                        18  135
   40 CONTINUE                                                          18  136
      IR4 = INDEX                                                       18  137
C     INCREMENT TAPE INDEX                                              18  138
      CALL PTHLF(TBUFF,IR4,IR10)                                        18  139
C     STORE LINK NUMBER                                                 18  140
      IR4 = IR4 + 1                                                     18  141
      CALL HALF(VACC,IR6,ITMP)                                          18  142
      ITMP = 4*ITMP                                                     18  143
      CALL PTHLF(TBUFF,IR4,ITMP)                                        18  144
      CALL PTHLF(TBUFF,IR4+7,ITMP)                                      18  145
      IR4 = IR4 + 1                                                     18  146
      ITMP = (BPC+16)/32                                                18  147
C     STORE PERCENT OCCUPANCY                                           18  148
      CALL PTHLF(TBUFF,IR4,ITMP)                                        18  149
      CALL PTHLF(TBUFF,IR4+7,ITMP)                                      18  150
      IR4 = IR4 + 1                                                     18  151
      CALL GETBY(DFAIL,IR6,ITMP)                                        18  152
      IF(ITMP.EQ.0) GO TO 50                                            18  153
         IR4=IR4+9                                                      18  154
      GO TO 60                                                          18  155
   50 CONTINUE                                                          18  156
      CALL GETBY(MBEIF,IR6,ITMP)                                        18  157
      IF(ITMP.EQ.0) GO TO 60                                            18  158
      IR4 = IR4 + 2                                                     18  159
      GO TO 65                                                          18  160
   60 CONTINUE                                                          18  161
C      STORE 0 FOR QUES                                                 18  162
      CALL PTHLF(TBUFF,IR4,0)                                           18  163
      IR4=IR4+1                                                         18  164
C      STORE 0 FOR STOPS                                                18  165
      CALL PTHLF(TBUFF,IR4,0)                                           18  166
      IR4 = IR4 + 1                                                     18  167
   65 CONTINUE                                                          18  168
      ITMP = (AVSP+4)/8                                                 18  169
C     STORE AVERAGE SPEED                                               18  170
      CALL PTHLF(TBUFF,IR4,ITMP)                                        18  171
      CALL PTHLF(TBUFF,IR4+5,ITMP)                                      18  172
      CALL PTHLF(TBUFF,IR4+6,0)                                         18  173
      IR4 = IR4 + 1                                                     18  174
      ITMP = TRT4 * 2                                                   18  175
C     STORE TRAVEL TIME                                                 18  176
      CALL PTHLF(TBUFF,IR4,ITMP)                                        18  177
      IR4 = IR4 + 1                                                     18  178
      ITMP = 0                                                          18  179
   72 CONTINUE                                                          18  180
C     STORE DELAY                                                       18  181
      CALL PTHLF(TBUFF,IR4,0)                                           18  182
      IR4 = IR4 + 5                                                     18  183



   80 CONTINUE                                                          18  184
      INDEX = IR4                                                       18  185
      ITMP = 0                                                          18  186
      CALL PTHLF(VACC,IR6,ITMP)                                         18  187
      CALL PTHLF(SACC,IR6,ITMP)                                         18  188
      CALL PTHLF(BACC,IR6,ITMP)                                         18  189
      IR6 = IR6 + 1                                                     18  190
      IF(IR6.LE.NMLNK) GO TO 20                                         18  191
      GO TO 100                                                         18  192
   90 CONTINUE                                                          18  193
      IR10 = IR6 + 1                                                    18  194
C     IF LINK IS IN TOLERANCE SET SIGN BIT OF LINK NO. AS THAT IS       18  195
```

```
C     PUT ON TAPE                                                       18  196
      IT = 1                                                            18  197
      CALL PTBI(IM10,17,1,0)                                            18  198
      GO TO 40                                                          18  199
  100 CONTINUE                                                          18  200
C     RESET INITIALIT ROUTINE C FLAG                                    18  201
      INIBE = INIBE - 1                                                 18  202
      BIND = BIND + 2                                                   18  203
C     SCHEDULE ROUTINE W                                                18  204
      MAST(MAST) = 1                                                    18  205
      IF(PRTFL.EQ.0) GO TO 180                                          18  206
C     TEST STATE OF PRINTER                                             18  207
      CALL TSTLP(IERR)                                                  18  208
      IF(IERR.EQ.1) GO TO 180                                           18  209
      BIND = BIND + 1                                                   18  210
C     OUTPUT LINK DATA TO LINE PRINTER(FOR LINKS THAT ARE OUT OF        18  211
C     TOLERANCE)                                                        18  212
      IF(NBINT.NE.0) GO TO 105                                          18  213
      BIND = BIND + 1                                                   18  214
      MAST(MAST) = 2                                                    18  215
      IENT = 1                                                          18  216
      CALL PRNTF(LCNT)                                                  18  217
      RETURN                                                            18  218
  105 CONTINUE                                                          18  219
      BIND = BIND + 1                                                   18  220
  110 CONTINUE                                                          18  221
      BIND = BIND + 2                                                   18  222
C     TEST STATE OF PRINTER                                             18  223
      CALL TSTLP(IERR)                                                  18  224
      IF(IERR.EQ.1) GO TO 180                                           18  225
      BIND = BIND + 2                                                   18  226
      IR1 = IR1 + 48                                                    18  227
      I9PT = 2                                                          18  228
      NBYTE = 30                                                        18  229
C     STORE 1ST LINE OF HEADER                                          18  230
      CALL STMSG(I9PT,IBNDX,LCNT,IR1,HD12,NBYTE)                        18  231
C     SKIP LINE                                                         18  232
      I9PT = 4                                                          18  233
      CALL STMSG(I9PT,IBNDX,LCNT,IR1,HD12,NBYTE)                        18  234
      IR1 = IR1 + 69                                                    18  235
C     STORE 2ND PART OF 2ND LINE                                        18  236
      I9PT = 2                                                          18  237
      NBYTE = 22                                                        18  238
      CALL STMSG(I9PT,IBNDX,LCNT,IR1,HD32,NBYTE)                        18  239
C     SKIP LINE                                                         18  240
      I9PT = 4                                                          18  241
      CALL STMSG(I9PT,IBNDX,LCNT,IR1,HD32,NBYTE)                        18  242
      IR1 = IR1 + 7                                                     18  243
C     STORE HEADER IN BUFFER                                            18  244
      I9PT = 3                                                          18  245
      NBYTE = 24                                                        18  246
      CALL STMSG(I9PT,IBNDX,LCNT,IR1,HD22,NBYTE)                        18  247
C     SKIP LINE                                                         18  248
      I9PT = 4                                                          18  249
      CALL STMSG(I9PT,IBNDX,LCNT,IR1,HD22,NBYTE)                        18  250
      IR1 = IR1 + 6                                                     18  251
C     STORE 1ST PART OF 3RD LINE                                        18  252
      NBYTE = 26                                                        18  253
      I9PT = 3                                                          18  254
      CALL STMSG(I9PT,IBNDX,LCNT,IR1,HD42,NBYTE)                        18  255
      IR1 = IR1 + 16                                                    18  256
C     STORE 2ND PART OF 3RD LINE                                        18  257
      I9PT = 2                                                          18  258
      NBYTE = 72                                                        18  259
      CALL STMSG(I9PT,IBNDX,LCNT,IR1,HD52,NBYTE)                        18  260
      IR1 = IR1 + 5                                                     18  261
C     STORE 1ST PART OF 4TH LINE                                        18  262
      I9PT = 3                                                          18  263
      NBYTE = 28                                                        18  264
      CALL STMSG(I9PT,IBNDX,LCNT,IR1,HD62,NBYTE)                        18  265
      IR1 = IR1 + 14                                                    18  266
C     STORE 2ND PART OF 4TH LINE                                        18  267
      I9PT = 2                                                          18  268
      NBYTE = 75                                                        18  269
      CALL STMSG(I9PT,IBNDX,LCNT,IR1,HD72,NBYTE)                        18  270
C     SKIP LINE                                                         18  271
      I9PT = 4                                                          18  272
      CALL STMSG(I9PT,IBNDX,LCNT,IR1,HD72,NBYTE)                        18  273
      IR5 = T6FPT                                                       18  274
  120 CONTINUE                                                          18  275
C     GET LINK NUMBER                                                   18  276
      CALL HALF(T6BUF,IR5,IR11)                                         18  277
      IF(IR11.LT.1) GO TO 170                                           18  278
      NBINT = NBINT - 1                                                 18  279
C     INCREMENT TAPE BUFFER POINTER                                     18  280
      IR5 = IR11                                                        18  281
      IR5 = IR5 + 1                                                     18  282
C     CHANGE TO EBCDIC CODE                                             18  283
      CALL EISRT(IR11,IVAL)                                             18  284
C     POSITION CHARACTERS                                               18  285
      CALL SBYTC(IVAL(1),1)                                             18  286
      IR11 = IVAL(2)                                                    18  287
      CALL GETBY(M9EIF,IR6,ITMP)                                        18  288
      IF(ITMP.EQ.0) GO TO 130                                           18  289
C     MAKE BLANK AN (*)                                                 18  290
      CALL GETBY(STR,1,ITMP)                                            18  291
      CALL PTBY(IM11,4,ITMP)                                            18  292
C     TEST IF BAD DETECTOR ON LINK                                      18  293
      CALL GETBY(DFAIL,IR6,ITMP)                                        18  294
      IF(ITMP.EQ.0) GO TO 130                                           18  295
C     MAKE (*) AN (H)                                                   18  296
      CALL GETBY(STR,2,ITMP)                                            18  297
      CALL PTBY(IM11,4,ITMP)                                            18  298
  130 CONTINUE                                                          18  299
C     STORE LINK NUMBER                                                 18  300
```

```
      DBUF(1) = IR11                                                    18  301
      CALL HALF(AMIST,IR6,ITMP)                                         18  302
      ITMP = (ITMP+1)/2                                                 18  303
C     CHANGE TO EBCDIC                                                  18  304
      CALL BISRT(ITMP,IVAL)                                             18  305
C     STORE MIST###, VBL(VEH)                                           18  306
      DBUF(4) = IVAL(2)                                                 18  307


      CALL HALF(AMIST,IR6,ITMP)                                         18  308
      ITMP = (ITMP*100+16384)/2**15                                     18  309
      CALL BISRT(ITMP,IVAL)                                             18  310
C     STORE MIST, MCC(PERCENT)                                          18  311
      DBUF(6) = IVAL(2)                                                 18  312
C     GET VEHICLES/HR (VEH)                                             18  313
      CALL HALF(TBUFF,IR5,ITMP)                                         18  314
      IR5 = IR5 + 1                                                     18  315
      CALL BISRT(ITMP,IVAL)                                             18  316
      DBUF(11) = IVAL(2)                                                18  317
C     GET PERCENT OCCUPANCY                                             18  318
      CALL HALF(TBUFF,IR6,ITMP)                                         18  319
      IR5 = IR5 + 1                                                     18  320
C     CONVERT TO EBCDIC CODE                                            18  321
      CALL BISRT(ITMP,IVAL)                                             18  322
      DBUF(13) = IVAL(2)                                                18  323
C     STORE BLANKS FOR QUEUE                                            18  324
      DBUF(16) = IBLNK                                                  18  325
      IR5 = IR5 + 2                                                     18  326
      GO TO 134                                                         18  327
  132 CONTINUE                                                          18  328
C     STORE BLANKS FOR STOPS                                            18  329
      IR5 = IR5 + 2                                                     18  330
      DBUF(16) = IBLNK                                                  18  331
  134 CONTINUE                                                          18  332
      DBUF(19) = IBLNK                                                  18  333
C     GET AVERAGE SPEED                                                 18  334
      CALL HALF(TBUFF,IR5,IR11)                                         18  335
      IR5 = IR5 + 1                                                     18  336
      CALL BISRT(IR11,IVAL)                                             18  337
      DBUF(22) = IVAL(2)                                                18  338
C     GET TRAVEL TIME                                                   18  339
      CALL HALF(TBUFF,IR5,ITMP)                                         18  340
      IR5 = IR5 + 1                                                     18  341
C     SET SCALE FACTOR                                                  18  342
      I5 = 5                                                            18  343
      CALL DECSN(ITMP,I5,IVAL)                                          18  344
C     STOR CURR CUM AVE TRAVEL TIME(SEC/VEH)                            18  345
      DBUF(24) = IVAL(1)                                                18  346
      DBUF(25) = IVAL(2)                                                18  347
      IR5 = IR5 + 5                                                     18  348
C     STORE BLANKS FOR CURRENT CUM AVE DELAY(SEC/VEH)                   18  349
      DBUF(26) = IBLNK                                                  18  350
C     SET LP CODED SPACE 0 LINES                                        18  351
      CALL PTBY(LPBUF,IR1,IT15)                                         18  352
      IR1 = IR1 + 8                                                     18  353
      IBPT = 2                                                          18  354
      NBYTE = 112                                                       18  355
      CALL STMSG(IBPT,IBNDX,LCNT,IR1,DBUF,NBYTE)                        18  356
C     TEST FOR MORE LINES                                               18  357
      IF(NBYTE .LE. 0)GOTO 140                                          18  358
C     TEST FOR FULL PAGE                                                18  359
      IF(LCNT.EQ.53) GO TO 150                                          18  360
      GO TO 120                                                         18  361
  140 CONTINUE                                                          18  362
      BIND = BIND + 1                                                   18  363
C     INITIALIZE TAPE BUFF POINTER                                      18  364
      TBPT = 9                                                          18  365
      NPAGE = 0                                                         18  366
      GO TO 160                                                         18  367
  150 CONTINUE                                                          18  368
      TBPT = IR5                                                        18  369
      NPAGE = NPAGE + 1                                                 18  370
  160 CONTINUE                                                          18  371
      CALL PRNTF(LCNT)                                                  18  372
C     SET FLAG TO CAUSE RETURN TO ROUTINE THAT CALLED RTCH              18  373
      LAST(NLAST) = 2                                                   18  374
      IEXT = 1                                                          18  375
      RETURN                                                            18  376
  170 CONTINUE                                                          18  377
      IR5 = IR5 + 12                                                    18  378
      GO TO 120                                                         18  379
  180 CONTINUE                                                          18  380
      IEXT=1                                                            18  381
      RETURN                                                            18  382
      END                                                               18  383
```

2.6.20 SUBROUTINE MHEAD

```
ROUTINE:  MHEAD

C  *   MHEAD                                                          32    1
       SUBROUTINE MHEAD                                              32    2
C      THIS ROUTINE LOADS THE MAIN HEADER INTO LPBUF.                32    3
       INTEGER HD11,HD21                                             32    4
       DIMENSION HD11(12),HD21(9)                                    32    5
       COMMON /BLK26/ DATE(3)     , PRVD(3)     , LPBUF(1856)        32    6
       COMMON/HDDB/HD11,HD21                                         32    7
       COMMON/MSUB3/IBLNK,IT15                                       32    8
       COMMON/MESAU/IBNDX,LCNT,IR1                                   32    9
       DATA HD11/'  UT','CS 1','5 MI','NUTE',' STA','TUS ','AND ','PERF', 32   10
      *        'ORMA','NCE ','REPO','RT  '/                          32   11
       DATA HD21/'  DA','TE  ','    ','    ','    ','    ',' TIM','E   ', 32   12
      1'    '/                                                       32   13
C      SPACE 3 LINES                                                 32   14
       CALL PTBY(LPBUF,1,IT15)                                       32   15
C      STORE 1ST LINE OF HEADER                                      32   16
       IR1 = 44                                                      32   17
       IPT = 2                                                       32   18
       NBYTE = 48                                                    32   19
       CALL STMSG(IPT,IBNDX,LCNT,IR1,HD11,NBYTE)                     32   20
C      SKIP LINE                                                     32   21
       IPT = 4                                                       32   22
       CALL STMSG(IPT,IBNDX,LCNT,IR1,HD11,NBYTE)                     32   23
       IR1 = IR1 + 49                                                32   24
C      STORE 2ND LINE OF HEADER                                      32   25
       IPT = 2                                                       32   26
       NBYTE = 36                                                    32   27
       CALL STMSG(IPT,IBNDX,LCNT,IR1,HD21,NBYTE)                     32   28
C      SKIP LINE                                                     32   29
       IPT = 4                                                       32   30
       CALL STMSG(IPT,IBNDX,LCNT,IR1,HD21,NBYTE)                     32   31
       RETURN                                                        32   32
       END                                                           32   33
```

2.6.21 SUBROUTINE OUTAP

```
ROUTINE:  OUTAP

*   *   OUTAP                                                          12    1
          DEF       OUTAP                                              12    2
          REF       MASK                                               12    3
          REF       HRF                                                12    4
          REF       TSTAP                                              12    5
          REF       SHTFLG                                             12    6
          REF       TBUFF1S                                            12    7
          REF       TBYTE                                              12    8
          RES       1                                                  12    9
1         RES       1                                                  12   10
          DATA      0                                                  12   11
SHTFL     EQU       SHTFLG                                             12   12
TBUFF     EQU       TBUFF1S                                            12   13
PTMP1     RES       1                                                  12   14
OUTAP     RES       0                                                  12   15
          LW,14     *1S                                                12   16
          STW,14    1                                                  12   17
          AI,1S     1                                                  12   18
          STW,15    PTMP1                                              12   19
          LI,6      0                 SET ERROR COND TO 0              12   20
          STA,6     *1                                                 12   21
          MTW,1     NRPT                                               12   22
          LW,6      HRF                                                12   23
          BEZ       $+3                                                12   24
          RD,0      0                                                  12   25
          BCR,2     CALLTAPE          NO, BRANCH                       12   26
          LW,10     RECDING           HAVE WE BEEN RECORDING           12   27
          BEZ       HEXIT             NO, EXIT                         12   28
          LI,10     0                                                  12   29
          STW,1D    RECDING           CLEAR RECORDING FLAG             12   30
          LI,0      DA(WRITEOF)       ADDRESS OF IOP COMMAND DOUBLE-   12   31
*                                      WORDS FOR EOF.                   12   32
          SIO,0     X'ED'             OUTPUT BUFFER                    12   33
          B         HEXIT                                              12   34
CALLTAPE  RES       0                                                  12   35
          LI,6      1                 SET ERROR = 1, RESET IF NO ERROR 12   36
          STA,6     *1                                                 12   37
          BAL,1S    TSTAP             CHECK CONDITION OF TAPE          12   38
          B         HEXIT             EXIT - ERROR RETURN              12   39
          LI,6      0                 RESET ERROR COND TO 0            12   40
          STA,6     *1                                                 12   41
          LW,10     SHTFL                                              12   42
          BEZ       $+5                                                12   43
          LI,10     0                                                  12   44
          STW,10    RECDING                                            12   45
          LW,10     MASK+2                                             12   46
          AWM,10    WRITAPE+1                                          12   47
          LI,0      DA(WRITAPE)       ADDRESS OF IOP COMMAND DOUBLE-   12   48
*                                      WORDS FOR WRITE                  12   49
          SIO,0     X'ED'             OUTPUT EOF                       12   50
          MTW,1     RECDING           SET RECORDING FLAG               12   51
HEXIT     RES       0                                                  12   52
          B         *PTMP1                                             12   53
          BBOND     B                                                  12   54
WRITAPE   GEN,8,24  1,BA(TBUFF)                                        12   55
          GEN,8,24  0,TBYTE                                            12   56
WRITEOF   GEN,8,24  X'73',0                                            12   57
          DATA      0                                                  12   58
RECDING   DATA      0                                                  12   59



HBLK2     DSECT     0                                                  12   60
NRPT      DATA      0                                                  12   61
          END                                                          12   62
```

2.6.22 SUBROUTINE OUT2G

```
ROUTINE:  OUT2G

      C   *   OUT2G                                                                  19    1
          SUBROUTINE OUT2G(II,I9PF)                                                  19    2
          COMMON /G2CONT/ WRKOFS(124),I0(124),IEA(31),ENTCYC(31),SPLIT(124),         19    3
         1 CGRPN(31)                                                                 19    4
          COMMON /BLK6 /  FMC         ,  FMARK       ,  MAST(9)     ,              19    5
         * MMAST          ,  JMAST       ,  KMAST       ,  EMAST       ,           19    6
         * HMAST          ,  WMAST       ,  QMAST       ,  IMAST       ,           19    7
         * SPACE          ,  MPOKY       ,  QCNT                                   19    8
          INTEGER HMAST                                                              19    9
          COMMON /BLK7/ IABG(16), INTH(31), INTP(31), KCTC(17), K3PH(31),            19   10
         * ISTOPF                                                                    19   11
          COMMON /BLK14/  CLENG       ,  DTLNG       ,  CMLNG       ,              19   12
         * DUMY1, DUMY2, CNTLN(372),ENTFL(5),                                       19   13
         * KCL(17), KCTF(17), KCSF(17),                                            19   14
         * NMVAR(31)      ,  SEMSK(8)     ,  VRINT(123)  ,  LKPTR(64)             19   15
          COMMON /BLK18/  CICTF(8)    ,  CTOOF(8)    ,  STBYD(8)    ,            19   16
         * CONTB(62)      ,  CURBF(31)   ,  CYCLC(31)   ,  ENINT(496)  ,          19   17
         * ENBFF(31)      ,  GGGT(124)   ,  GAWTP(31)   ,  GBWTP(31)   ,          19   18
         * GLABC(124)     ,  GGGG(124)   ,  GUABC(124)  ,  INTDU(496)  ,          19   19
         * SSSS(124)      ,  TKM(31)     ,  WRKBF(31)                             19   20
          DIMENSION IFMD(7),IFMD1(21),IFMD2(21),ITBL(21),INUM(4)                     19   21
          DATA ISPCE/'    '/                                                         19   22
          DATA IFMD/'UTCS','  INT','ERSE','CTIB','N BF','FSET','S   '/             19   23
          DATA IFMD1/'INTE','RSEC','TIBN','   A','  PHA','SE  ','   B','  PHA'    19   24
         1 ,'SE  ','    C','  PHA','SE  ','    ','CYCL','E   ','SUBN','ETWB',     19   25
         2 'RK  ','  CWR','E GR','OUP '/                                            19   26
          DATA IFMD2/'   N','UMBE','R   ','    ','BFFS','ET  ','    ','BFFS'      19   27
         1 ,'ET  ','    ','BFFS','ET  ','   L','ENGT','H   ','   N','UMBE',      19   28
         2 'R   ','   N','UMBE','R   '/                                            19   29
          IBNDX=1                                                                    19   30
          I9PT=5                                                                     19   31
          LCNT=1                                                                     19   32
          LNDEX=7220                                                                 19   33
          CALL STMSG(I9PT,IBNDX,LCNT,LNDEX,IFMD ,NBYT)                               19   34
          I8PT=3                                                                     19   35
          LNDEX=53                                                                   19   36
          NBYT=28                                                                    19   37
          CALL STMSG(I9PT,IBNDX,LCNT,LNDEX,IFMD ,NBYT)                               19   38
          CALL TIMEH(INUM)                                                           19   39
          LNDEX=LNDEX+15                                                             19   40
          I9PT=2                                                                     19   41
          NBYT=16                                                                    19   42
          CALL STMSG(I8PT,IBNDX,LCNT,LNDEX,INUM,NBYT)                                19   43
          I9PT=4                                                                     19   44
          CALL STMSG(I9PT,IBNDX,LCNT,LNDEX,IFMD ,NBYT)                               19   45
          I8PT=2                                                                     19   46
             NBYT=84                                                                 19   47
          LNDEX=LNDEX+30                                                             19   48
          CALL STMSG(I9PT,IBNDX,LCNT,LNDEX,IFMD1,NBYT)                               19   49
          LNDEX=LNDEX+30                                                             19   50
          CALL STMSG(I8PT,IBNDX,LCNT,LNDEX,IFMD2,NBYT)                               19   51
          I9PT=4                                                                     19   52
          CALL STMSG(I9PT,IBNDX,LCNT,LNDEX,IFMD ,NBYT)                               19   53
          I=II                                                                       19   54
          ICLK=1                                                                     19   55
        5 CONTINUE                                                                   19   56
          IF (I .GT. 124) GO TO 95                                                   19   57
          CALL GETBY(INTH,I,ICC)                                                     19   58
          IF (ICC .EQ. 0)  GO TO 110                                                 19   59
          DO 10 J=1,21                                                               19   60
       10 ITBL(J)=ISPCE                                                              19   61
          CALL E1SRT(I,INUM)                                                         19   62
          ITBL(2)=INUM(2)                                                            19   63
          DO 20 J=1,9                                                                19   64
          JJ=4*(J-1)+J                                                               19   65
          CALL GETBY(I0,JJ,ID)                                                       19   66
          ID=ID/2                                                                    19   67
          K=3*(J+1)+1                                                                19   68
          CALL E1SRT(ID,INUM)                                                        19   69
          ITBL(K)=INUM(2)                                                            19   70
       20 CONTINUE                                                                   19   71
          CALL GETBY(CYCLC,I,IC)                                                     19   72
          ID=KCL(IC+1)/2                                                             19   73
          CALL E1SRT(ID,INUM)                                                        19   74
          ITBL(14)=INUM(2)                                                           19   75
          CALL GETBY(IEA,I,IC)                                                       19   76
          CALL E1SRT(IC,INUM)                                                        19   77
          ITBL(17)=INUM(2)                                                           19   78
          CALL GETBY(CGRPN,I,IC)                                                     19   79
          CALL E1SRT(IC,INUM)                                                        19   80
          ITBL(20)=INUM(2)                                                           19   81
          I9PT=2                                                                     19   82
             NBYT=84                                                                 19   83
          LNDEX=LNDEX+30                                                             19   84
          CALL STMSG(I8PT,IBNDX,LCNT,LNDEX,ITBL ,NBYT)                               19   85
          IF(I.LT.124) GO TO 100                                                     19   86
       95 II = 1                                                                     19   87
          I9PF=1                                                                     19   88
          GO TO 200                                                                  19   89
      100 CONTINUE                                                                   19   90
          ICLK = ICLK + 1                                                            19   91
      110 I = I + 1                                                                  19   92
          IF (ICLK .LT. 45)  GO TO 05                                                19   93
          II = I                                                                     19   94
          I9PF=0                                                                     19   95
      200 CALL PRNTF(LCNT)                                                           19   96
          MAST(HMAST)=2                                                              19   97
          RETURN                                                                     19   98
          END                                                                        19   99
```

2.6.23 SUBROUTINE PRNTF

```
ROUTINE:  PRNTF

*   *   PRNTF                                                          13    1
          DEF       PRNTF                                              13    2
*         SUBROUTINE TO SERVICE LINE PRINTER                           13    3
*                                                                      13    4
*         WILL DYNAMICALLY SET UP NECCESSARY COMMAND LIST TO PRINT, N LI 13    5
*         R7 MUST CONTAIN THE NUMBER OF LINES TO PRINT(R7 = 1)          13    6
          REF       LPBUF                                              13    7
          REF       E1SRT                                              13    8
          REF       ENDACTH,ENDACTI                                    13    9
          REF       SAVR0                                              13   10
          REF       M1L8                                               13   11
PNUM      RES       1                                                  13   12
VAL       RES       4                   CONVERTED EBCDIC NUMBER WILL   13   13
*                                       BE RETURNED IN SECOND WORD OF  13   14
*                                       THIS ARRAY                     13   15
SAVR16    RES       16                                                 13   16
          BOUND     8                                                  13   17
LPCOM     RES       106                 53 LINES PER PAGE              13   18
PRINTF    GEN,8,24  5,BA(LPBUF)         PRINT, WITH FORMAT             13   19
          GEN,8,24  X'26',133                                          13   20
          RES       1                                                  13   21
I         RES       1                                                  13   22
          DATA      0                                                  13   23
PTMP1     RES       1                                                  13   24
LSCNT     DATA      0                                                  13   25
PRNTF     RES       0                                                  13   26
          LW,14     =15                                                13   27
          STW,14    I                                                  13   28
          AI,15     1                                                  13   29
          STW,15    PTMP1                                              13   30
          LW,7      =1                                                 13   31
          LW,10     LSCNT               TEST IF FULL PAGE LAST TIME    13   32
          CI,10     53                                                 13   33
          BE        *+3                 YES, DON'T HOME PAPER          13   34
          LI,10     X'F1'               NO, HOME PAPER                 13   35
          STB,10    LPBUF                                              13   36
          STW,7     LSCNT               SAVE CURRENT LINE OUTPUT       13   37
          LW,7      RTNHC               GET INDEX FOR PROPER END ACTION 13   38
*                                       ADDRESS                        13   39
          LW,10     $ENDACT,7           GET ADDRESS                    13   40
          STW,10    SIOLP+3             STORE IN CAL1 FPT              13   41
          LW,7      LSCNT               RESTORE R7                     13   42
          LW,11     7                   COMPUTE END OF DATA ADRESS     13   43
          AI,11     =1                                                 13   44
          MI,11     133                                                13   45
          LD,12     PRINTF              GET COMMAND DOUBLEWORD         13   46
          ESR,13    =X'30000000'        CLEAR COMMAND CHAIN AND SET    13   47
*                                       END INTERRUPT CONDITIONS       13   48
          AW,12     11                  ADD BUFFER OFFSET              13   49
          STD,12    LPCOM-2,7           STORE IN COMMAND LIST          13   50
          AI,7      -1                  DECREMENT LINE COUNT           13   51
          BEZ       STRTBUT             ONLY ONE PRINT LINE            13   52
          AI,11     -133                                               13   53
          LD,12     PRINTF              GET COMMAND DOUBLEWORD         13   54
          AW,12     11                  ADD BUFFER OFFSET              13   55
          STD,12    LPCOM-2,7           STORE IN COMMAND LIST          13   56
          BDR,7     $-4                 LOOP BACK                      13   57
STRTBUT   RES       0                                                  13   58
          MTW,1     PAGNM               INCREMENT PAGE NUMBER          13   59


          LCI       0                   SET UP CALL TO FORTRAN ROUTINE 13   60
          STA,0     SAVR16                                             13   61
          LW,0      SAVR0               STORE PAGNM IN PNUM AS CALL    13   62
          LW,11     PAGNM               TO E1SRT WILL DESTROY INPUT    13   63
          STW,11    PNUM                                               13   64
          LI,14     2                                                  13   65
          BAL,15    E1SRT                                              13   66
          GEN,8,24  1,PNUM                                             13   67
          GEN,8,24  1,VAL                                              13   68
          LCI       0                                                  13   69
          LM,0      SAVR16                                             13   70
          LW,11     VAL+1               STORE CONVERTED NUMBER INTO    13   71
          STW,11    LPBUF+31            PRINT BUFFER                   13   72
DOSIO     RES       0                   ISSUE SIO                      13   73
          CAL1,5    SIOLP                                              13   74
          B         *PTMP1                                             13   75
SIOLP     GEN,8,24  X'12',AA(M1L8)                                     13   76
          GEN,8,24  X'CD',0                                            13   77
          DATA      LPCOM                                              13   78
          DATA      ENDACTH                                            13   79
$ENDACT   DATA      ENDACTH,ENDACTI                                    13   80
HBLK1     DSECT     0                                                  13   81
PAGNM     DATA      0                                                  13   82
HBLK3     DSECT     0                                                  13   83
RTNHC     DATA      0                                                  13   84
          END                                                          13   85
```

2.6.24 SUBROUTINE SBYTC

```
ROUTINE:  SBYTC

      C   *   SBYTC                                                          47    1
          SUBROUTINE SBYTC(A, N)                                             47    2
      C**** THIS ROUTINE PERFORMS A CIRCULAR SHIFT ON N BYTES OF DATA.       47    3
      C        A = FIRST BYTE OF AN N BYTE ARRAY.  MUST BE ON WORD BOUNDARY. 47    4
      C        N = NO. OF BYTES TO SHIFT TO THE LEFT.  IF N IS NEGATIVE THE  47    5
      C            SHIFT IS TO THE RIGHT.       -4 .LE. N .LE. 4             47    6
          INTEGER A, B                                                       47    7
          DIMENSION A(2), B(4)                                               47    8
          B(1) = A(2)                                                        47    9
          B(2) = A(1)                                                        47   10
          B(3) = A(2)                                                        47   11
          B(4) = A(1)                                                        47   12
          I1   = N + 5                                                       47   13
          I2   = I1 + 7                                                      47   14
          K = 1                                                              47   15
          DO 1 I = I1,I2                                                     47   16
          CALL GETBY(B,I,J)                                                  47   17
          CALL PTBY (A,K,J)                                                  47   18
          K = K + 1                                                          47   19
        1 CONTINUE                                                           47   20
          RETURN                                                             47   21
          END                                                                47   22
```

2.6.25 SUBROUTINE STAT

```
ROUTINE:  STAT

C  *   STAT                                                                  17    1
       SUBROUTINE STAT(J8PT,IRET)                                            17    2
       INTEGER CICBY,CICEF,CICTF,CTBDF,MS8  ,PAGNM,SMSKT                     17    3
       INTEGER ACKF ,BIND ,CICCT,CICSF,CLINF,CMALF,CMMAL,DBUF ,DIS  ,        17    4
      1        DMALF,DM8DE,FLTAB,FTYPE,M8LD ,PATNM,PKEY ,SCDFC,SECFC,       17    5
      2        SFAIL,SVIND,TIMCH,WMAST,WRF                                  17    6
       INTEGER FMD1,FMD2,C8NMD,DETMD,SMD1,SMD2,SMD3,WISD,8FF8N,E8CMD        17    7
       DIMENSION CTABL(220)                                                 17    8
       DIMENSION DBUF(1),IVAL(4)                                            17    9
       DIMENSION FTYPE(5),ACKF(2),FMD1(8),FMD2(12),C8NMD(8),DETMD(7)        17   10
      1,         SMD1(7),SMD2(14),SMD3(19),WISD(3),8FF8N(2),E8CMD(4)       17   11
       C8MM8N/MESAG/IBNDX,LCNT,IR1                                          17   12
       C8MM8N/WBLK1/PAGNM                                                   17   13
       C8MM8N/WSUB2/BIND,CTABL,I8L                                          17   14
       C8MM8N/WSUB3/IBLNK,IT15                                              17   15
       C8MM8N /WSUB5/ LCHAR,PKEY,SMSKT,SVIND                                17   16
       C8MM8N /BLK6 /  FMC          ,  FMARK        ,  MAST(9)      ,       17   17
      * MMAST        ,  JMAST        ,  KMAST        ,  LMAST        ,       17   18
      * MMAST        ,  WMAST        ,  QMAST        ,  IMAST        ,       17   19
      * SPACE        ,  MP8KY        ,  QCNT                                 17   20
       C8MM8N /BLK8/ M1, NDLNK(69), TT3,                                    17   21
      * TT7                                                                 17   22
       C8MM8N /BLK10/  CICSC(16)    ,  CICSY(8)     ,  CTLSC(16)    ,       17   23
      2 CTLSY(4),CNSEC(31),CNTZN(19),LNKCN(69),                             17   24
      * TIMCH(4)     ,  ZSI(32)                                             17   25
       C8MM8N /BLK11/  MSB15(32)    ,  IG15(64)     ,  KK           ,       17   26
      2 LNKDI(64),ND8L(69),N8NCS,N8CNT(4),                                  17   27
      * T8SU                                                                17   28
       C8MM8N /BLK12/ D(138), DAYWK, JJ,                                    17   29
      * LNKSI(3)     ,  PATNM(3)     ,  PRTFL        ,  SCNSI(2)     ,       17   30
      * SCCNT(29),SSFW                                                      17   31
       C8MM8N /BLK15/  CMSET        ,  MBUFL        ,  IGP1         ,       17   32
      * MNUMF        ,  NBMCH        ,  NCW22        ,  NCAD2        ,       17   33
      * NCWRD        ,  NMANP        ,  NMCTL        ,  NMLNK        ,       17   34
      * NMSCT        ,  NMVED        ,  NPATB        ,  NPB4         ,       17   35
      * NMESP        ,  NSTM1        ,  TBSIZ        ,  TBYTE        ,       17   36
      * CS           ,  DS           ,  FS           ,  NS           ,       17   37
      * QS           ,  RS           ,  SS           ,  SCS                  17   38
       C8MM8N /BLK17/  ADVNM(8)     ,  CICBP(8)     ,  CPABG(3)     ,       17   39
      * IADVP(8)     ,  CNTDR(124)   ,  CNTNM        ,  IL2          ,       17   40
      * INTNM(31)    ,  ITNML(31)    ,  INTBU(32)    ,  KL2          ,       17   41
      * STBTM(32), TIMEB(32), QVBK(69)                                      17   42
       C8MM8N /BLK18/  CICTF(8)     ,  CTBDF(8)     ,  STHYD(8)     ,       17   43
      * C8NTB(62)    ,  CURBF(31)    ,  CYCLC(31)    ,  ENINT(496)   ,       17   44
      * ENBFF(31)    ,  GGGT(124)    ,  GAWTP(31)    ,  GBATP(31)    ,       17   45
      * GLABC(124)   ,  GGGG(124)    ,  GUABC(124)   ,  INTDU(496)   ,       17   46
      * SSSS(124)    ,  TKM(31)      ,  WRKBF(31)                            17   47
       C8MM8N /BLK25/ AMCC(138), CMMAL(17), CMIAB(258),                     17   48
      * DTTAB(258)   ,  DIS(17)      ,  DMALF(17)    ,  DM8DE        ,       17   49
      * FLTAB(800)   ,  HRF          ,  M8DES        ,  NAI          ,       17   50
      * N8FAL, SBAR(69), SECFC(4), SCDFC(4), V8L(138)                       17   51
       C8MM8N /BLK26/  DATE(3)      ,  PRVD(3)      ,  LPBUF(1806)          17   52
       C8MM8N/BLK28/AGR(14),PIA(6),RCM(2),MSB(14),APBM1(14),CPN9U,CPN8T,    17   53
      * MARR(640)    ,  MMAP(2)      ,  JCNT         ,  KCNT         ,       17   54
      * MNC15        ,  WHSBF        ,  CLBCK        ,  WMINF        ,       17   55
      * MINCT        ,  TAB(3)       ,  N8N8(8)                              17   56
       EQUIVALENCE(CICEF,CICBP(2))                                          17   57
       EQUIVALENCE(DBUF,LPBUF(1766))                                        17   58
       EQUIVALENCE(CICSF(1),CTBDF(2))                                       17   59


       EQUIVALENCE(M8LD(1),MSB(2))                                          17   60
       EQUIVALENCE(CMALF(1),CICTF(2))                                       17   61
       DATA FTYPE/'C8NT',' DET ','C8MM',' BDET','BC8M'/                     17   62
       DATA ACKF/' N  ',' Y  '/                                             17   63
       DATA FMD1/'  **',' UT','CS F',' AILU',' RE S',' TATU',' S **','*   '/ 17   64
       DATA FMD2/' TYPE',' N',' UMBF',' R  ',' ',' TIME',' ',' M8NT',       17   65
      1' H  ',' DAY',' ',' ACK '/                                           17   66
       DATA C8NMD/'*** ',' UTCS',' C8N',' TRBL',' LER ',' STAT',' US **',' ** '/17   67
      1/                                                                    17   68
       DATA DETMD/'*** ',' UTCS',' DET',' ECTB',' R ST',' ATUS',' ***'/     17   69
       DATA WISD/' WIST',' BRY ',' '/                                       17   70
       DATA 8FF8N/' 8FF',' 8N'/                                             17   71
       DATA E8CMD/' STBY',' MAN ',' T8D ',' TRSP'/                          17   72
       DATA LET1,LET2/' FSCI',' DD  '/                                      17   73
       DATA SMD1/'*** ',' UTCS',' SYS',' TEM ',' STAT',' US **',' **  '/    17   74
       DATA SMD2/' DESI',' RED ',' ACT',' UAL ',' PAI',' TTER',' N  ',' CI', 17   75
      1' C IN',' ',' ',' ',' FAIL',' URES'/                                 17   76
       DATA SMD3/' SECT',' ION ',' TIM',' E  ',' ',' M8D',' E  ',' ',' M8)',' E  ', 17   77
      1' N',' IO ',' ',' ',' BP',' ER ',' ',' ',' ',' DE',' T  ',' ',' C 17   78
      2BN',' T  '/                                                          17   79
       IRET = 0                                                             17   80
C      BRANCH TO REQUESTED STATUS FAILURE CHECK                             17   81
       GO TO (5,70,140,180),J8PT                                            17   82
C                                                                           17   83
C         FAILURE STATUS PAGE                                               17   84
C                                                                           17   85
     5 CONTINUE                                                             17   86
       IR6 = N8FAL                                                          17   87
C      GET NUMBER FAILURES IN FLTAB                                         17   88
       IF(MNUMF.GT.N8FAL) GO TO 10                                          17   89
C      SET N8FAL = MAX                                                      17   90
       IR6 = MNUMF                                                          17   91
    10 CONTINUE                                                             17   92
C      BRANCH IF THIS FIRST PAGE OF FAIURES TO BE OUTPUT                    17   93
       IF(PKEY.EQ.0) GO TO 20                                               17   94
C      RESET PAGE KEY                                                       17   95
```

```
      PKEY = PKEY + 1                                                   17   96
C     NOT 1ST PAGE SO GET PREVIOUS INDEX                                17   97
      IR5 = SVIND                                                       17   98
   20 CONTINUE                                                          17   99
C     BRANCH IF MORE FAILURES TO REPORT                                 17  100
      IF(IR6.NE.0) GO TO 30                                             17  101
C     NO MORE FAILURES, INCREMENT BRANCH INDEX                          17  102
      BIND = BIND + 1                                                   17  103
C     BRANCH TO CONTROLLER STATUS(CSTAT)                                17  104
      GO TO 70                                                          17  105
   30 CONTINUE                                                          17  106
      IF(PAGNO.EQ.0) CALL MHEAD                                         17  107
      CALL PTBY(LPBUF,IR1,IT15)                                         17  108
      IR1 = IR1 + 55                                                    17  109
      IPRT = 2                                                          17  110
      NBYTE = 31                                                        17  111
      CALL STMSG(IPRT,IBNDX,LCNT,IR1,FMD1,NBYTE)                        17  112
      IPRT = 4                                                          17  113
      CALL STMSG(IPRT,IBNDX,LCNT,IR1,FMD1,NBYTE)                        17  114
C     STORE SECOND HEADER IN BUFFER                                     17  115
      IR1 = IR1 + 46                                                    17  116
      IPRT = 2                                                          17  117
      NBYTE = 48                                                        17  118
      CALL STMSG(IPRT,IBNDX,LCNT,IR1,FMD2,NBYTE)                        17  119
      IPRT = 4                                                          17  120
      CALL STMSG(IPRT,IBNDX,LCNT,IR1,FMD2,NBYTE)                        17  121
      IR5 = 40+(IR6+1)                                                  17  122
   40 CONTINUE                                                          17  123
C     POSITION BUFFER POINTER                                           17  124
      IR1 = IR1 + 46                                                    17  125
      I = FLTAB(IR5+1)                                                  17  126
C     GET 1ST WORD OF FAILURE                                           17  127
      CALL GETBY(I,2,ITMP)                                              17  128
      CALL PTBY(J,4,ITMP)                                               17  129
      DBUF(1) = FTYPE(J+2)                                              17  130
      CALL HALF(I,2,ITMP)                                               17  131
      CALL BISRT(ITMP,IVAL)                                             17  132
      N = 1                                                             17  133
      CALL SBYTC(IVAL,N)                                                17  134
      DBUF(3) = IVAL(2)                                                 17  135
C     GET 2ND FAILURE WORD                                              17  136
C     FLTAB(IR6+2) = XHHM                                               17  137
      L = FLTAB(IR6+2)                                                  17  138
C     FLTAB(IR6+3) = MXMM                                               17  139
      M = FLTAB(IR6+3)                                                  17  140
C     FLTAB(IR6+4) = MXDD                                               17  141
      N = FLTAB(IR6+4)                                                  17  142
      CALL GETBY(L,2,ITMP)                                              17  143
      CALL PTBY(LX,1,ITMP)                                              17  144
      CALL GETBY(L,3,ITMP)                                              17  145
      CALL PTBY(LX,2,ITMP)                                              17  146
      CALL GETBY(L,4,ITMP)                                              17  147
      CALL PTBY(LX,3,ITMP)                                              17  148
      CALL GETBY(M,1,ITMP)                                              17  149
      CALL PTBY(LX,4,ITMP)                                              17  150
C     DBUF(6) = HHMM                                                    17  151
      DBUF(6) = LX                                                      17  152
      ITMP = IBLNK                                                      17  153
      CALL PTBY(LX,1,ITMP)                                              17  154
      CALL GETBY(M,3,ITMP)                                              17  155
      CALL PTBY(LX,2,ITMP)                                              17  156
      CALL GETBY(M,4,ITMP)                                              17  157
      CALL PTBY(LX,3,ITMP)                                              17  158
      CALL GETBY(N,1,ITMP)                                              17  159
      CALL PTBY(LX,4,ITMP)                                              17  160
C     DBUF(8) = (40)MMM                                                 17  161
      DBUF(8) = LX                                                      17  162
      ITMP = IBLNK                                                      17  163
      CALL PTBY(LX,1,ITMP)                                              17  164
      CALL PTBY(LX,2,ITMP)                                              17  165
      CALL GETBY(N,3,ITMP)                                              17  166
      CALL PTBY(LX,3,ITMP)                                              17  167
      CALL GETBY(N,4,ITMP)                                              17  168
      CALL PTBY(LX,4,ITMP)                                              17  169
C     DBUF(10) = (40)(40)DD                                             17  170
      DBUF(10) = LX                                                     17  171
C     GET ACKNOWLEDGE CODE                                              17  172
      CALL GETBY(1,1,ITMP)                                              17  173
      DBUF(12) = ACK(ITMP+1)                                            17  174
      NBYTE = 48                                                        17  175
C     STORE IN OUTPUT BUFFER                                            17  176
      IPRT = 2                                                          17  177
      CALL STMSG(IPRT,IBNDX,LCNT,IR1,DBUF,NBYTE)                        17  178
C     MOVE TO NEXT FAILURE                                              17  179
      IR5 = IR6 + 4                                                     17  180
      IF(LC.LT.52) GO TO 50                                             17  181
      CALL PTBY(LPBUF,IR1,IT15)                                         17  182
C     BRANCH IF ALL FAILURES NOT DONE                                   17  183



      IF(IR6.GE.0) GO TO 40                                             17  184
      BIND = BIND + 1                                                   17  185
   50 CONTINUE                                                          17  186
C     REPORT NUMBER OF FAILURES LEFT TO PROCESS                         17  187
      IR5 = (IR6+4)/2                                                   17  188
      SVIND = IR5                                                       17  189
C     SET ERROR KEY FOR NEXT PASS                                       17  190
      PKEY = PKEY + 1                                                   17  191
   60 CONTINUE                                                          17  192
C     SET RETURN OPTION TO ROUTINE THAT CALLED H                        17  193
      IRET = 1                                                          17  194
      CALL PRNTF(LCNT)                                                  17  195
C     SET SERVICE BIT IN MAST                                           17  196
```

```
      MAST(MMAST) = 2                                                   17  197
      IRET = 1                                                          17  198
C     RETURN TO EXECUTIVE ROUTINE                                       17  199
      RETURN                                                            17  200
C                                                                       17  201
C        CONTROLLER STATUS PAGE                                         17  202
C                                                                       17  203
   70 CONTINUE                                                          17  204
C     RESET PAGE KEY FOR FAILURE STATUS ON NEXT 15 MIN                  17  205
      PKEY = IR1                                                        17  206
C     TEST IF MAIN HEADER OUT YET                                       17  207
      IF(PAGNM.EQ.0) CALL MHEAD                                         17  208
      CALL PTBY(LMBUF,IR1,IT15)                                         17  209
      IR1 = IR1 + 55                                                    17  210
      IBPT = 2                                                          17  211
      NBYTE = 30                                                        17  212
      CALL STMSG(IBPT,IBNDX,LCNT,IR1,CONMD,NBYTE)                       17  213
      IBPT = 4                                                          17  214
      CALL STMSG(IBPT,IBNDX,LCNT,IR1,CONMD,NBYTE)                       17  215
      IR1 = IR1 + 12                                                    17  216
C     INITIALIZE                                                        17  217
      I = 1                                                             17  218
      IR4 = 1                                                           17  219
      IR6 = 0                                                           17  220
      IR12 = 1                                                          17  221
      IBRAN = 1                                                         17  222
   80 CONTINUE                                                          17  223
      IR10 = 0                                                          17  224
C     SET IR9 FOR FAILURE                                               17  225
      CALL GETBY(LET1,1,ITMP)                                           17  226
      CALL PTBY(IR9,4,ITMP)                                             17  227
      IX = IR12                                                         17  228
      CALL GETBI(CMALF,IX,IBIT,1)                                       17  229
C     TEST CONTROLLER FAILED                                            17  230
      IF(IBIT.GT.0) GO TO 90                                            17  231
C     SET IR9 FOR STANDBY                                               17  232
      CALL GETBY(LET1,2,IR9)                                            17  233
C     TEST FOR STANDBY                                                  17  234
      CALL GETBI(MHLD,IX,IBIT,1)                                        17  235
C     IF HOLD = 0 SEE IF CONTROLLER EXISTS                              17  236
      IF(IBIT.EQ.0) GO TO 120                                           17  237
C     TEST CIC SELECTED                                                 17  238
      CALL GETBI(CICSF,IX,IBIT,1)                                       17  239
      IF(IBIT.EQ.0) GO TO 110                                           17  240
C     SET FOR ACTIVE CIC                                                17  241
      CALL GETBY(LET1,3,IR9)                                            17  242
      CALL GETBI(CICLF,IX,IBIT,1)                                       17  243
C     TEST ACTIVE CIC                                                   17  244
      IF(IBIT.NE.0) GO TO 90                                            17  245
C     INHIBITED CIC                                                     17  246
      CALL GETBY(LET1,4,IR9)                                            17  247
   90 CONTINUE                                                          17  248
C     GET CONTROLLER NUMBER AND CONVERT TO EBCDIC AND ADD IN STATUS CODE 17  249
      K = IR12                                                          17  250
      CALL ESRT(K,IVAL)                                                 17  251
      K = IVAL(2)*2**8 + IR9                                            17  252
      DBUF(IR6+1) = K                                                   17  253
      IR4 = IR6 + 2                                                     17  254
      CLINE = CLINE + 1                                                 17  255
      LCHAR = LCHAR + 1                                                 17  256
C     TEST END OF LINE                                                  17  257
      IF(LCHAR.LT.0) GO TO (110,100),IBRAN                              17  258
  100 CONTINUE                                                          17  259
      LCHAR = -14                                                       17  260
      NBYTE = IR6*4                                                     17  261
      IBPT = 2                                                          17  262
      CALL STMSG(IBPT,IBNDX,LCNT,IR1,DBUF,NBYTE)                        17  263
      CALL PTBY(LMBUF,IR1,IT15)                                         17  264
      IR1 = IR1 + 12                                                    17  265
      IR6 = 0                                                           17  266
      GO TO (110,160),IBRAN                                             17  267
  110 CONTINUE                                                          17  268
C     ADVANCE CONTROLLER NUMBER                                         17  269
      IR12 = IR12 + 1                                                   17  270
      IF(IR12.GT.NMCTL) GO TO 130                                       17  271
      GO TO 80                                                          17  272
  120 CONTINUE                                                          17  273
C     NUMBER OF NON-EXISTANT CONTROLLERS                                17  274
      ICBN = NBACS                                                      17  275
  125 CONTINUE                                                          17  276
      JCBN = IC9N + 1                                                   17  277
      CALL GETBY(NBCNT,JCBN,ITMP)                                       17  278
C     MATCH, DO NOT OUTPUT                                              17  279
      IF(IR12.EQ.ITMP) GO TO 110                                        17  280
      IC9N = IC8N + 1                                                   17  281
      IF(IC8N.GT.0) GO TO 125                                           17  282
C     LEGITIMATE CONTROLLER                                             17  283
      GO TO 90                                                          17  284
  130 CONTINUE                                                          17  285
C     TEST FOR PARTIAL LINE                                             17  286
      IF(IR6.NE.0) GO TO 100                                            17  287
      BIND = BIND + 1                                                   17  288
      ITMP = CLINE                                                      17  289
      CLINE = 0                                                         17  290
      IF(IT-P.GT.0) GO TO 60                                            17  291
C     SET IRET TO CALL RTNM1                                            17  292
      IRET = 2                                                          17  293
      RETURN                                                            17  294
C                                                                       17  295
C        DETECTOR STATUS PAGE                                           17  296
C                                                                       17  297
  140 CONTINUE                                                          17  298
C     TEST MAIN HEADER OUT YET.                                         17  299
      IF(PAGNM.EQ.0) CALL MHEAD                                         17  300
      CALL PTBY(LMBUF,IR1,IT15)                                         17  301
      IR1 = IR1 + 53                                                    17  302
```

```
      I9PT = 2                                                          17  303
      NBYTE = 28                                                        17  304
      CALL STMSG(I9PT,IBNDX,LCNT,IR1,DETHD,NBYTE)                       17  305
      I9PT = 4                                                          17  306
      CALL STMSG(I9PT,IBNDX,LCNT,IR1,DETHD,NBYTE)                       17  307



      IR1 = IR1 + 12                                                    17  308
C     SET MASK INDEX                                                    17  309
      I = 1                                                             17  310
C     SET MASKD INDEX                                                   17  311
      IR4 = 1                                                           17  312
C     SET STORE INDEX                                                   17  313
      IR5 = 0                                                           17  314
C     SET DETECTOR NUMBER                                               17  315
      IR12 = 1                                                          17  316
      IBMAX = 2                                                         17  317
  150 CONTINUE                                                          17  318
      IR10 = 0                                                          17  319
C     SET IR9 FOR DETECTOR FAILURE                                      17  320
      CALL GETBY(LET2,1,IR9)                                            17  321
      IX = IR12                                                         17  322
      CALL GETBI(DMALF,IX,IBIT,0)                                       17  323
C     BRANCH IF DETECTOR FAILURE                                        17  324
      IF(IBIT.NE.0) GO TO 90                                            17  325
C     SET IR9 FOR COMM FAILURE                                          17  326
      CALL GETBY(LET1,3,IR9)                                            17  327
      CALL GETBI(CMMAL,IX,IBIT,0)                                       17  328
C     TEST FOR COMM FAILURE                                             17  329
      IF(IBIT.NE.0) GO TO 90                                            17  330
      CALL GETBY(LET1,2,IR9)                                            17  331
C     TEST DETECTOR STANDBY                                             17  332
      CALL GETBI(DIS,IX,IBIT,0)                                         17  333
      IF(IBIT.NE.0) GO TO 90                                            17  334
  160 CONTINUE                                                          17  335
C     ADVANCE DETECTOR NUMBER                                           17  336
      IR12 = IR12 + 1                                                   17  337
C     TEST GREATER THAN MAXIMUM                                         17  338
      IF(IR12.LE.NMVED) GO TO 150                                       17  339
  170 CONTINUE                                                          17  340
C     TEST FOR PARTIAL LINE WAITING TO BE STORED                        17  341
      IF(IR6.NE.0) GO TO 100                                            17  342
      BIND = BIND + 1                                                   17  343
      ITMP = CLINE                                                      17  344
      CLINE = 0                                                         17  345
      IF(ITMP.GT.0) GO TO 60                                            17  346
C     SET IRET TO CALL RTNH1                                            17  347
      IRET = 2                                                          17  348
      RETURN                                                            17  349
C                                                                       17  350
C        SYSTEM STATUS PAGE                                             17  351
C                                                                       17  352
  180 CONTINUE                                                          17  353
      SMSKT = 0                                                         17  354
C     TEST IF MAIN HEADER BUT YET                                       17  355
      IF(PAGNM.EQ.0) CALL MHEAD                                         17  356
      CALL PTBY(LPBUF,IR1,IT15)                                         17  357
      IR1 = IR1 + 52                                                    17  358
      NBYTE = 26                                                        17  359
      I9PT = 2                                                          17  360
      CALL STMSG(I9PT,IBNDX,LCNT,IR1,SHD1,NBYTE)                        17  361
      I9PT = 4                                                          17  362
      CALL STMSG(I9PT,IBNDX,LCNT,IR1,SHD1,NBYTE)                        17  363
      IR1 = IR1 + 27                                                    17  364
C     GET OFF OR ON CODE                                                17  365
      MISD(3) = OFFON(MRF+1)                                            17  366
      I9PT = 2                                                          17  367
      NBYTE = 12                                                        17  368
      CALL STMSG(I9PT,IBNDX,LCNT,IR1,MISD,NBYTE)                        17  369
      I9PT = 4                                                          17  370
      CALL STMSG(I9PT,IBNDX,LCNT,IR1,MISD,NBYTE)                        17  371
      IR1 = IR1 + 42                                                    17  372
      I9PT = 2                                                          17  373
      NBYTE = 56                                                        17  374
      CALL STMSG(I9PT,IBNDX,LCNT,IR1,SHD2,NBYTE)                        17  375
      CALL PTBY(LPBUF,IR1,IT15)                                         17  376
      IR1 = IR1 + 27                                                    17  377
      NBYTE = 73                                                        17  378
      CALL STMSG(I9PT,IBNDX,LCNT,IR1,SHD3,NBYTE)                        17  379
      I9PT = 4                                                          17  380
      CALL STMSG(I9PT,IBNDX,LCNT,IR1,SHD3,NBYTE)                        17  381
      IR6 = 1                                                           17  382
  190 CONTINUE                                                          17  383
      IR11 = IR6                                                        17  384
      CALL E1SRT(IR11,IVAL)                                             17  385
      N = 1                                                             17  386
      CALL SBYTC(IVAL,N)                                                17  387
      DBUF(1) = IVAL(2)                                                 17  388
C     GET TIME OF CHANGE FOR SECTION                                    17  389
      DBUF(3) = TIMCH(IR6)                                              17  390
C     GET DESIRED MODE                                                  17  391
      CALL GETBY(DMODE,IR6,ITMP)                                        17  392
      DBUF(5) = EBCMD(ITMP+1)                                           17  393
C     GET ACTUAL MODE                                                   17  394
      CALL GETBY(MODES,IR6,ITMP)                                        17  395
      DBUF(7)=EBCMD(ITMP+1)                                             17  396
C     GET PATTERN NUMBER                                                17  397
      CALL GETBY(PATNM,IR6,ITMP)                                        17  398
      ITMP = ITMP + 1                                                   17  399
      CALL E1SRT(ITMP,IVAL)                                             17  400
      DBUF(9) = IVAL(2)                                                 17  401
      CICCT = 0                                                         17  402
      IR3 = 0                                                           17  403
C     GET NUMBER OF CIC FROM ROUTINE K                                  17  404
```

```
      CALL CIC(IR3,SMSKT,CICCT)                                          17  405
      CALL EISRT(CICCT,IVAL)                                             17  406
      DBUF(12) = IVAL(2)                                                 17  407
C     GET NUMBER OF DETECTOR FAILURES                                    17  408
      K = SCOFC(IM6)                                                     17  409
      CALL EISRT(K,IVAL)                                                 17  410
      N = 1                                                              17  411
      CALL SBYTC(IVAL,N)                                                 17  412
      DBUF(16) = IVAL(2)                                                 17  413
C     GET NUMBER OF CONTROLLER FAILURES                                  17  414
      K = SCOFC(IM6)                                                     17  415
      CALL EISRT(K,IVAL)                                                 17  416
      N = 1                                                              17  417
      CALL SBYTC(IVAL,N)                                                 17  418
      DBUF(18) = IVAL(2)                                                 17  419
      IR1 = IR1 + 28                                                     17  420
      IRPT = 2                                                           17  421
      NBYTE = 72                                                         17  422
      CALL STMSG(IRPT,IBNDX,LCNT,IR1,DBUF,NBYTE)                         17  423
      IRPT = 4                                                           17  424
      CALL STMSG(IRPT,IBNDX,LCNT,IR1,DBUF,NBYTE)                         17  425
      IR5 = IR6 + 1                                                      17  426
C     TEST END                                                           17  427
      IF(IR6.LE.NMSGT) GO TO 190                                         17  428
      BIND = BIND + 1                                                    17  429
      CALL PRNTF(LCNT)                                                   17  430
C     RETURN TO EXECUTIVE ROUTINE                                        17  431


      IRET = 1                                                           17  432
      RETURN                                                             17  433
      END                                                                17  434
```

2.6.26 SUBROUTINE STMSG

```
ROUTINE:  STMSG

      C     *    STMSG
            SUBROUTINE STMSG(IOPT,IBNDX,LCNT,LNDEX,MESSG,NBYTE)                    33    2
      C     STMSG STORES MESSAGE INTO LPBUF                                        33    3
      C     THIS ROUTINE ALSO WILL SPACE ONE LINE OR LOAD LPBUF WITH BLANKS.       33    4
      C                                                                            33    5
      C     INPUT                                                                  33    6
      C       IOPT = 1 NUMBER OF BYTES IN MESSAGE IS OBTAINED FROM FIRST BYTE      33    7
      C                IN MESSAGE.                                                 33    8
      C            = 2 NUMBER OF BYTES IN MESSAGE IS IN CALLING SEQUENCE.          33    9
      C            = 3 ONLY A PARTIAL LINE IS TO BE OUTPUT. LCNT AND IBNDX ARE     33   10
      C                NOT INCREMENTED.                                            33   11
      C       IOPT = 4 SPACE ONE LINE                                              33   12
      C       IOPT = 5 SET LPBUF TO BLANKS                                         33   13
      C       IBNDX= BUFINDEX.                                                     33   14
      C       LCNT = LINE COUNT.                                                   33   15
      C       LNDEX= LPBUF INDEX.                                                  33   16
      C       LPBUF= OUTPUT BUFFER.                                                33   17
      C       MESSG= CONTAINS MESSAGE TO BE OUTPUT.                                33   18
      C       NBYTE= NUMBER OF BYTES TO BE OUTPUT.                                 33   19
      C                                                                            33   20
      C     OUTPUT                                                                 33   21
      C       LCNT = CURRENT LINE COUNT                                            33   22
      C       IBNDX= CURRENT BUFINDEX                                              33   23
      C       LNDEX= CURRENT LPBUF INDEX                                           33   24
      C                                                                            33   25
            DIMENSION MESSG(1)                                                     33   26
            COMMON /BLK26/  DATE(3)         PRVO(3)         LPBUF(1806)            33   27
            COMMON/HSUBB/IBLNK,IT1S                                                33   28
            GO TO (30,10,20,60,70),IOPT                                            33   29
         10 CONTINUE                                                               33   30
            J = 1                                                                  33   31
            GO TO 40                                                               33   32
         20 CONTINUE                                                               33   33
            LCNT = LCNT + 1                                                        33   34
            IBNDX = IBNDX + 133                                                    33   35
            J = 1                                                                  33   36
            GO TO 40                                                               33   37
         30 CONTINUE                                                               33   38
            J = 2                                                                  33   39
            CALL GETBY(MESSG,1,NBYTE)                                              33   40
         40 CONTINUE                                                               33   41
            DO 50 I=1,NBYTE                                                        33   42
            CALL GETBY(MESSG,J,ITEMP)                                              33   43
            CALL PTBY(LPBUF,LNDEX,ITEMP)                                           33   44
            LNDEX = LNDEX + 1                                                      33   45
            J = J + 1                                                              33   46
         50 CONTINUE                                                               33   47
            LCNT = LCNT + 1                                                        33   48
            IBNDX = IBNDX + 133                                                    33   49
            GO TO 100                                                              33   50
      C     SPACE ONE LINE                                                         33   51
         60 CONTINUE                                                               33   52
            CALL PTBY(LPBUF,LNDEX,IT1S)                                            33   53
            LCNT = LCNT + 1                                                        33   54
      C     INITIALIZE LPBUF INDEX TO START OF NEXT LINE.                          33   55
            IBNDX = IBNDX + 133                                                    33   56
            CALL PTBY(LPBUF,LNDEX,IT15)                                            33   57
            GO TO 100                                                              33   58
         70 CONTINUE                                                               33   59
      C     SET LPBUF TO BLANKS                                                    33   60
            LMAX = LNDEX/4 + 1                                                     33   61
            DO 80 J=1,LMAX                                                         33   62
            LPBUF(J) = IBLNK                                                       33   63
         80 CONTINUE                                                               33   64
            LNDEX = 1                                                              33   65
        100 CONTINUE                                                               33   66
            IF(IOPT.EQ.3) GO TO 150                                                33   67
            LNDEX = IBNDX                                                          33   68
        150 CONTINUE                                                               33   69
            RETURN                                                                 33   70
            END                                                                    33   71
```

2.6.27 SUBROUTINE TIMEH

```
ROUTINE:  TIMEH

*   *   TIMEH                                                                   18    1
*     SUBROUTINE TIMEH(IBUF)                                                    18    2
*                                                                               18    3
*     THIS SUBROUTINE TAKES ALPHANUMERIC DATA(DATE,YEAR,MONTH,DAY,HOUR          18    4
*     AND MINUTE) OBTAINED FROM A CAL SERVICE TO READ THE RBM CLOCK AND         18    5
*     REPACKS THE DATA INTO IBUF.                                               18    6
*                                                                               18    7
*     INPUT                                                                     18    8
*       NONE                                                                    18    9
*                                                                               18   10
*     OUTPUT                                                                    18   11
*       IBUFF - TWO BYTES REPRESENTING YEAR IN 9TH AND 10TH BYTES.              18   12
*               THREE BYTES REPRESENTING MONTH IN 2ND, 3RD AND 4TH BYTES        18   13
*               TWO BYTES REPRESENTING DAY IN 6TH AND 7TH BYTES.                18   14
*               TWO BYTES REPRESENTING HOUR IN 12TH AND 14TH BYTES.             18   15
*               TWO BYTES REPRESENTING MINUTE IN 15TH AND 16TH BYTES.           18   16
*                                                                               18   17
          DEF       TIMEH                                                     18   18
          REF       QSTUP1                                                    18   19
          RES       1                                                         18   20
IBUF      RES       1                   ADDR OF BUFFER TO STORE OUTPUT        18   21
          DATA      0                                                         18   22
PTEMP1    DATA      0                                                         18   23
TIMEH     RES       0                   ENTRY                                 18   24
          LI,5      1                                                         18   25
          BAL,6     QSTUP1                                                    18   26
          GEN,8,24  1,IBUF                                                    18   27
          STW,15    PTEMP1                                                    18   28
          LCI       4                                                         18   29
          STM,10    RSAVE               SAVE REGS 10 THRU 13                  18   30
          CAL1,8    TIMEFPT             READ CLOCK INTO RBMTIME               18   31
          LW,10     RBMTIME                                                   18   32
          LW,11     RBMTIME+1                                                 18   33
          ST,10     12                                                        18   34
          SLD,10    =24                                                       18   35
          ANE,11    =X'FFFF'                                                  18   36
          AND,12    =X'FFFF0000'                                              18   37
          A,12      11                                                        18   38
          ST,12     13                  R13=HOUR,HOUR,MIN,MIN                 18   39
          LW,10     RBMTIME+1                                                 18   40
          LW,11     RBMTIME+2                                                 18   41
          SLD,10    8                   R10=SPACE,MONTH,MONTH,MONTH           18   42
          AI,11     X'40'               SPACE,DAY,DAY,SPACE                   18   43
          LW,12     RBMTIME+8           YEAR RIGHT ADJUSTED                   18   44
          SLS,12    16                  LEFT ADJUSTED                         18   45
          AI,12     X'4040'             R12= 2 BYTES OF YEAR + 2 SPACES       18   46
*         MOVE DATA TO USER'S BUFFER                                          18   47
          LCI       4                                                         18   48
          STM,10    *IBUF                                                     18   49
*         RESTORE REGISTERS AND EXIT                                          18   50
          LM,10     RSAVE                                                     18   51
          B         *PTEMP1                                                   18   52
*                                                                             18   53
TIMEFPT   RES       0                   FILE POINTER TO READ RBM CLOCK        18   54
          GEN,6,7,17  X'10',0,RBMTIME                                         18   55
RBMTIME   DATA      0,0,0,0             BUFFER FOR RBM CLOCK DATA             18   56
RSAVE     DATA      0,0,0,0             SAVE REGS 10-13                       18   57
          END                                                                 18   58
```

2.6.28 SUBROUTINE TSTAP

```
ROUTINE:  TSTAP,TYPEOUT

*  *  TSTAP,TYPEOUT                                                    16    1
       DEF     TSTAP                                                   16    2
       DEF     TYPEOUT                                                 16    3
       REF     MASK                                                    16    4
REGSAV REC     16                                                      16    5
TSTAP  LCI,7   7                                                       16    6
       STW,7   REGSAV          SAVE REGISTERS                          16    7
TIOTP  TIO,13  X'E0'           TEST TAPE                               16    8
       BCR,12  TDVTP           UNIT OK, TEST FOR WRITE PROTECT         16    9
       LI,7    5                                                       16   10
       BCS,3   TPERR           ADDRESS UNRECOGNIZED                    16   11
       LI,7    3               SET INDEX FOR LOOP                      16   12
       LB,13   13              MOVE STATUS BYTE TO BOTTOM              16   13
       CB,13   MKTIB,7         COMPARE AGAINST MASKS                   16   14
       HANZ    TPERR           RECORD APPROPRIATE ERROR COND           16   15
       BDR,7   *-2             KEEP LOOKING                            16   16
TPERR  MI,7    5               IF FALL THROUGH, MUST BE MANUAL         16   17
       AI,7    ERRMESS         COMPUTE ERR MESS ADDRESS                16   18
       STW,7   TYPEOUT+2       STR FOR NON SERVICE CALL                16   19
       CALI,2  TYPEOUT         PRINT ERROR MESSAGE                     16   20
TPEXT  LCI     7               RESTORE REGISTERS                       16   21
       LW,7    REGSAV                                                  16   22
       B       *15                                                     16   23
TDVTP  TDV,13  X'ED'           TEST FOR WRITE PROTECTED                16   24
       LI,7    4                                                       16   25
       CW,13   MASK+1                                                 16   26
       BAZ     TPERR           WRITE PROTECTED                         16   27
       MTW,1   15              ADVANCE RETURN ADDRESS                  16   28
       B       TPEXT           AND EXIT                                16   29
MKTIB  DATA,1  0,X'80',X'6D',X'02' INT PEND,BUSY,UNUSUAL END           16   30
ERRMESS TEXTC  '  MBE TAPE MANUAL  '                                   16   31
       TEXTC   '  MBE TAPE INT PEND'                                   16   32
       TEXTC   '  MBE TAPE BUSY '                                      16   33
       TEXTC   '  MBE TAPE UNUS END'                                   16   34
       TEXTC   '  MBE TAPE WRT PROT'                                   16   35
       TEXTC   '  MBE TAPE NOT RECG'                                   16   36
TYPEOUT DATA   X'02000000'                                             16   37
       DATA    X'00000000'                                             16   38
       DATA    0                                                       16   39
       END                                                             16   40
```

2.6.29 SUBROUTINE TSTLP

```
ROUTINE: TSTLP

*   *   TSTLP                                                          17   1
          DEF       TSTLP                                              17   2
          REF       TYPEOUT                                            17   3
          REF       MASK                                               17   4
          RES       1                                                  17   5
I         RES       1                                                  17   6
          DATA      0                                                  17   7
PTMP1     RES     1                                                    17   8
TSTLP     RES       0                                                  17   9
          LW,14     *15                                                17  10
          STW,14    I                                                  17  11
          AI,15     1                                                  17  12
          STW,15  PTMP1                                                17  13
          LI,6      0                                                  17  14
          STX,6     *I                                                 17  15
          TIO,13    2                 TST LINE PRINTER                 17  16
          BCR,12    TOVLP             GOOD, TEST PAPER LOW, ETC.       17  17
          LI,6      TIOMSK            SET TEST MASK ADDRESS IN R6      17  18
ERRSCAN   LI,7      4                 SET LOOP COUNT                   17  19
          LB,13     13                TRANSFER STATUS BYTE TO BOTTOM   17  20
          CB,13     *6,7              TEST FOR ERROR                   17  21
          BANZ      LPERR             ERROR CONDITION                  17  22
          BDR,7     $-2               LOOP                             17  23
LPERR     MI,7      5                 FORM MESSAGE ADDRESS             17  24
          CI,6      TIOMSK            TEST IF TIO OR TOV               17  25
          BNE       $+3               NO TIO                           17  26
          AI,7      TIOMESS           FORM ADDRESS FOR TIO             17  27
          B         $+2               17  28
          AI,7      TOVMESS           FORM ADDRESS FOR TOV             17  29
          STX,7     TYPEOUT+2         STR IN BUFFER                    17  30
          CAL1,2    TYPEOUT           OUTPUT MESSAGE                   17  31
          LI,6      1                 17  32
          STX,6     *I                17  33
LPEXIT$   RES       0                 17  34
          B       *PTMP1              17  35
TOVLP     RES       0                 17  36
          CW,13     MASK+3            TEST IF MANUAL MODE              17  37
          BANZ      DOTOV             NO, DO TOV                       17  38
          LI,6      TIOMSK            SET R6                           17  39
          LI,7      0                 SET INDEX FOR MANUAL MESSAGE     17  40
          B         LPERR             AND RECORD ERROR                 17  41
DOTOV     TOV,13    2                 TEST DEVICE                      17  42
          BCS,12    $+2               SOMETHING WRONG                  17  43
          B         LPEXIT$           17  44
          LI,6      TOVMSK            17  45
          B         ERRSCAN           SCAN FOR ERROR                   17  46
TIOMSK    DATA,1    0,X'80',X'20',X'40',X'08'                          17  47
          BOUND     4                 17  48
TOVMSK    DATA,1    0,X'20',X'04',0,0 17  49
          BOUND     4                 17  50
TIOMESS   RES       0                 17  51
          TEXTC     '  LP MANUAL MODE   '                             17  52
          TEXTC     '  LP INT NOT ACKN  '                             17  53
          TEXTC     '  LP POWER OFF     '                             17  54
          TEXTC     '  LP BUSY          '                             17  55
          TEXTC     '  LP UNUSUAL END   '                             17  56
TOVMESS   RES       0                 17  57
          TEXTC     '  LP PAPER LOW     '                             17  58
          TEXTC     '  LP PAPER RUN AWAY'                             17  59


          TEXTC     '  LP PARITY ERROR  '                             17  60
          END                                                          17  61
```

2.6.30 ROUTINE I

```
ROUTINE:  RTNI

      C  *   RTNI                                                                  26    1
           SUBROUTINE RTNI                                                         26    2
           INTEGER HDA                                                             26    3
           INTEGER  AMCC,AMIST,AJJ,BLNKS,BLZP,CC2,CHSET,CLENG,CMLNG,CMMAL,         26    4
          1 CMTAB,CNDIS,CNTLN,CS,CTIM,D,DA,DATE,DBUF,DCF,DFAIL,DIS,DLDAY,          26    5
          2 DMALF,DMODE,DSF,DSW,DS,DTLNG,DTTAB,DUMY1,DUMY2,DVL,DVLP,EMAST,         26    6
          3 ENTFL,EODT,FAIL,FLTAB,FMARK,FMC,FMTBD,FS,FSTFL,FTAB,FTBND,HBUFL,       26    7
          4 HD11,HD12,HD21,HD22,HD31,HD41,HDS1,HLIDF,HLIDT,HMAST,HRF,HSB15,       26    8
          5 HTEST,HTST,IDAY,PATNM,PRCOD,PRTFL,PRVD,PTIM,PTN,QCNT,QPT,QS,          26    9
          6 RAWBC,RAWSP,RS,RTC,     SBAR,SCCNT,SCDFC,SCNSI,SCS,SECFC,SEMSK,       26   10
          7 SPACE,SRDIS,SS,SSFA,STPT,TBSIZ,TBYTE,THRSH,TIME,TOSU,TBSU1,           26   11
          8 TSTRT,TSUA,TXA,TXN,TXS,TXT,VHIST,VBL,XMAST                            26   12
           INTEGER SMTFL, DAYWK, STLP, PAGNM, SUMS, DLSUM,BSUM,QSUM,SSUM,         26   13
          X STPS1,TTSUM,VSUM,DLSCT,BSECT,QSECT,SSECT,STPSC,TTSCT,VSECT,           26   14
          X DLTP,EBDC,STPTP, VDAY, BPC, AVSP, TTTMP,SDAY,TMPS,D,QMAST             26   15
           COMMON /HDDS/ IDM,HDA                                                  26   16
           COMMON /BLK6 /  FMC          ,  FMARK        ,  MAST(9)     ,         26   17
          * MMAST        ,  JMAST        ,  KMAST        ,  EMAST       ,         26   18
          * HMAST        ,  WMAST        ,  QMAST        ,  IMAST       ,         26   19
          * SPACE        ,  MPOKY        ,  QCNT                                 26   20
           COMMON /BLK9/ DSPA(24), FPPF, KBCC, KH, LFDPN(2), VC, TRDLY,           26   21
          1 SCTLN(138), SLFDP(11)                                                 26   22
           INTEGER SCTLN                                                          26   23
           COMMON /BLK11/  HSB1S(32)    ,  IG15(64)     ,  KW          ,         26   24
          2 LNKDI(64),NOBL(69),NANCS,NBCNT(4),                                    26   25
          * TBSU                                                                  26   26
           COMMON /BLK12/ D(138),DAYWK,JJDUM,                                     26   27
          * LNKSI(3)     ,  PATNM(3)     ,  PRTFL        ,  SCNSI(2)    ,         26   28
          * SCCNT(29),SSFA                                                        26   29
           COMMON /BLK13/  DWL(259)     ,  DWLP(17)     ,  EBDC        ,         26   30
          1 FTAB, FTBND, MBEIF(69)                                                26   31
      C****    THE ARRAY LNKPT(64) WAS CHANGED TO LKPTR(64) IN THIS BLOCK        26   32
      C****    BECAUSE OF A LABEL CONFLICT IN THIS PROGRAM.                       26   33
           COMMON /BLK14/  CLENG        ,  DTLNG        ,  CMLNG       ,         26   34
          * DUMY1, DUMY2, CNTLN(372),ENTFL(5),                                    26   35
          * KCL(17), KCTF(17), KCSF(17),                                         26   36
          * XMVAR(31)    ,  SEMSK(8)     ,  VRINT(123)   ,  LKPTR(64)           26   37
           COMMON /BLK15/  CHSET        ,  HBUFL        ,  IGPI        ,         26   38
          * MNUMF        ,  NBMCH        ,  NCA22        ,  NCAD2       ,         26   39
          * NCWRD        ,  NMANP        ,  NMCTL        ,  NMLNK       ,         26   40
          * NMSCT        ,  NMVED        ,  NPATB        ,  NPB4        ,         26   41
          * NRESP        ,  NSTM1        ,  TBSIZ        ,  TBYTE       ,         26   42
          * CS           ,  DS           ,  FS           ,  NS          ,         26   43
          * QS           ,  RS           ,  SS           ,  SCS                   26   44
           COMMON /BLK19/ CC2(129), DFAIL(69), DBF(17),                           26   45
          * MI(31)       ,  RAWBC(258)   ,  RAWSP(258)   ,  RTC         ,         26   46
          * TSTRT(S16)                                                           26   47
           COMMON /BLK20/ AVSP, DLDAY(138), NSDAY(138), BDAY(138), BPC,           26   48
          1 SMT, SDAY(138), VDAY(138)                                             26   49
           COMMON /BLK24/ AMIST(138), CNDIS, DCF,                                 26   50
          * DMA          ,  FMTBD        ,  FSTFL        ,  HLIDF       ,         26   51
          * HLIDT(96)    ,  NHDAY        ,  PRCBD        ,  PTN(745)    ,         26   52
          * SMTFL, SRDIS, THRSH, VHIST(138)                                       26   53
           COMMON /BLK25/ AMCC(138), CMMAL(17), CMTAB(258),                       26   54
          * DTTAB(258)   ,  DIS(17)      ,  DMALF(17)    ,  DMODE       ,         26   55
          * FLTAB(800)   ,  HRF          ,  MBDES        ,  NAI         ,         26   56
          * NMAL, SBAR(69), SECFC(4), SCDFC(4), VBL(138)                          26   57
           COMMON /BLK26/  DATE(3)      ,  PRVD(3)      ,  LPBUF(1806)          26   58
           COMMON/HBLK1/PAGNM                                                     26   59
           COMMON /HBLK2/ NRPT                                                    26   60
           COMMON /HBLK3/ IEAF                                                    26   61
           COMMON /ISUB1/ IBRX,NWSEC,IPGKY                                        26   62
           DIMENSION IDM(12)                                                      26   63
           DIMENSION DA(3),IDA(3)                                                 26   64
           DIMENSION CTIM(4), PTIM(4), TSUA(1)                                    26   65
           DIMENSION HDA(9)                                                       26   66
           DIMENSION HD11( S),HD21( 6),HD31( 7),HD41(27),HDS1(24)                 26   67
           DIMENSION HD12(31), HD22(31)                                           26   68
           DIMENSION TXA(2), TXS(2), TXT(2), TXN(1)                               26   69
           DIMENSION HTST(3)                                                      26   70
           DIMENSION DBUF(30)                                                     26   71
           EQUIVALENCE (TSUA(1),TBSU), (JJ,AJJ)                                   26   72
           EQUIVALENCE (LPBUF(1766),DBUF(1))                                      26   73
           EQUIVALENCE (DA(1),IDA(1))                                             26   74
           DATA HD11( 1),HD11( 2),HD11( 3),HD11( 4),HD11( 5)/                     26   75
          X      ' END',  ' OF ',  'DAY ',  'REPB',  'RT  '/                     26   76
           DATA HD12( 1),HD12( 2),HD12( 3),HD12( 4),HD12( S),HD12( 6),           26   77
          1     HD12( 7),HD12( 8),HD12( 9),HD12(10),HD12(11),HD12(12),           26   78
          2     HD12(13),HD12(14),HD12(1S),HD12(16),HD12(17),HD12(18),           26   79
          3     HD12(19),HD12(20),HD12(21),HD12(22),HD12(23),HD12(24),           26   80
          4     HD12(25),HD12(26),HD12(27),HD12(28),HD12(29),HD12(30),           26   81
          S     HD12(31)/                                                        26   82
          6       ' SYS',  'TEM ',  '    ',  '    ',  '    ',  '    ',          26   83
          7       ' VB',  'LUME',  '    ',  '    ',  ' TRA',  'VeTI',          26   84
          8       'ME  ',  '    ',  '   D',  'ELAY',  '    ',  '    ',          26   85
          9       '   S',  'TBPS',  '    ',  '    ',  ' BC',  'CUPA',  'NCY ',  26   86
          A       '    ',  'QUEU',  'E   ',  '    ',  '    ',  'SPEE',          26   87
          B       'D   '/                                                        26   88
           DATA HD21( 1),HD21( 2),HD21( 3),HD21( 4),HD21( S),HD21( 6)/           26   89
          X       '    ',  'INIT',  'IAL ',  'TIME',  '    ',  '    '/          26   90
           DATA HD22( 1),HD22( 2),HD22( 3),HD22( 4),HD22( S),HD22( 6),           26   91
          1     HD22( 7),HD22( 8),HD22( 9),HD22(10),HD22(11),HD22(12),           26   92
          2     HD22(13),HD22(14),HD22(1S),HD22(16),HD22(17),HD22(18),           26   93
          3     HD22(19),HD22(20),HD22(21),HD22(22),HD22(23),HD22(24),           26   94
          4     HD22(25),HD22(26),HD22(27),HD22(28),HD22(29),HD22(30),           26   95
          S     HD22(31)/                                                        26   96
          6       ' PER',  'FORM',  'ANCE',  '    ',  '    ',  '    ',          26   97
          7       '   T',  'OTAL',  '    ',  '    ',  '   T',  'OTAL',          26   98
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     8        '    ',  '    ',  '    T',  'OTAL',  '    ',  '    ',        26   99
     9        '    T',  'OTAL',  '    ',  '    P',  'ERCE',  'NT  ',        26  100
     A        '    A',  'VERA',  'GE  ',  '    ',  '    A',  'VERA',        26  101
     B        'GE  '/                                                        26  102
      DATA HD31( 1),HD31( 2),HD31( 3),HD31( 4),HD31( 5),                    26  103
     X     HD31( 6),HD31( 7)/                                               26  104
     X        '  RE',  'PORT',  ' NO.',  '    ',  '    ',                  26  105
     X        '    ',  '    '/                                             26  106
      DATA HD41( 1),HD41( 2),HD41( 3),HD41( 4),HD41( S),HD41( 6),           26  107
     1     HD41( 7),HD41( 8),HD41( 9),HD41(10),HD41(11),HD41(12),           26  108
     2     HD41(13),HD41(14),HD41(15),HD41(16),HD41(17),HD41(14),           26  109
     3     HD41(19),HD41(20),HD41(21),HD41(22),HD41(23),HD41(24),           26  110
     4     HD41(25),HD41(26),HD41(27)/                                      26  111
     5        ' LIN',  'K   ',  '    V',  'BLUM',  'E   ',  '    ',        26  112
     6        '  TR',  'AV.T',  'IME ',  '    ',  '    ',  'DELA',        26  113
     7        'Y   ',  '    ',  '    ',  'STBR',  'S   ',  ' BCC',        26  114
     8        'UPAN',  'CY  ',  '    ',  'QUEU',  'E   ',  '    ',        26  115
     9        '    ',  'SPEE',  'D   '/                                     26  116
      DATA HDS1( 1),HDS1( 2),HD51( 3),HDS1( 4),HD51( 5),HDS1( 6),           26  117
     1     HD51( 7),HD51( 8),HD51( 9),HDS1(10),HDS1(11),HD51(12),           26  118
     2     HD51(13),HD51(14),HD51(15),HD51(16),HDS1(17),HDS1(18),           26  119
     3     HD51(19),HD51(20),HDS1(21),HD51(22),HD51(23),HDS1(24)/           26  120
     4        ' VEH',  'ICLE',  'S   ',  '    ',  ' VE',  'HOUR',          26  121


     5        'S   ',  '    ',  '    ',  'HRS ',  '    ',  '    ',        26  122
     6        '    ',  'VEH ',  '    ',  ' PER',  'CENT',  '    ',        26  123
     7        ' VEH',  '/CYC',  'LE  ',  '    ',  '    ',  'MPH '/        26  124
      DATA TAS(1)/ TAS(2)/ ' SEC','TION'/                                   26  125
      DATA TAT(1)/ TAT(2)/ ' TOT','AL  '/                                   26  126
      DATA TAN(1)/ ' NI '/                                                  26  127
      DATA TAA(1)/ TAA(2)/ ' AVE','RAGE'/                                   26  128
      DATA EBDT,BLNKS ,IBAVE,JJ,STPTP                                       26  129
     X  / '2400','    ',   1,  1,    1/                                     26  130
      DATA BLZP/ ' 0' /                                                     26  131
      DATA TBSW1 /'0000'/                                                   26  132
      DO 1 IB = 1,1806                                                      26  133
      LPBUF(IB) = BLNKS                                                     26  134
    1 CONTINUE                                                              26  135
      IBNDX = 0                                                             26  136
      LCNT = 0                                                              26  137
      LNDEX = 0                                                             26  138
      IEAF=1                                                                26  139
      GO TO ( 9,31,46,50,60),IBRX                                           26  140
  100 CONTINUE                                                              26  141
      IBRX = 1                                                              26  142
      JJ   = 1                                                              26  143
C**** RELEASE LINE PRINTER                                                  26  144
      CALL CALRL                                                            26  145
      IF(PNTBD.NE.0) GO TO 101                                              26  146
C        TEST FOR SHUT DOWN                                                 26  147
      IF (SHTFL.NE.0)  GO TO 101                                            26  148
      HLIDF = 0                                                             26  149
      IF(NHDAY.EQ.0) GO TO 102                                              26  150
      DO 105 IH=1,3                                                         26  151
      HTST(IH) = DATE(IH)                                                   26  152
  105 CONTINUE                                                              26  153
      CALL SBYTC(HTST,1)                                                    26  154
      HTST(2) = DATE(2)                                                     26  155
      CALL SBYTC(HTST(2),1)                                                 26  156
      IH = 0                                                                26  157
      NH = 3*NHDAY                                                          26  158
  104 CONTINUE                                                              26  159
      IF(HTST(1).NE.HLIDT(IH+1)) GO TO 103                                  26  160
      IF(HTST(2).NE.HLIDT(IH+2)) GO TO 103                                  26  161
      HTEST = HLIDT(IH+3)                                                   26  162
      CALL PTBY(HTEST, 3, BLNKS)                                            26  163
      IF(HTST(3).NE.HTEST) GO TO 103                                        26  164
      CALL GETBY(HTST,JH+11,HLIDF)                                          26  165
      NHDAY = NHDAY - 1                                                     26  166
      NH = 3*NHDAY                                                          26  167
      HLIDT(IH+1) = HLIDT(NH+1)                                             26  168
      HLIDT(IH+2) = HLIDT(NH+2)                                             26  169
      HLIDT(IH+3) = HLIDT(NH+3)                                             26  170
  102 CONTINUE                                                              26  171
      EBDC = 1                                                              26  172
  110 CONTINUE                                                              26  173
      RETURN                                                                26  174
  103 CONTINUE                                                              26  175
      IF(IH.GE.NH) GO TO 102                                                26  176
      IH = IH + 3                                                           26  177
      JH = JH + 12                                                          26  178
      GO TO 104                                                             26  179
  101 CONTINUE                                                              26  180
      EBDC = EBDC + 1                                                       26  181
      LCNT=5                                                                26  182
      GO TO 110                                                             26  183
    9 CONTINUE                                                              26  184
      IF(IPGMY.NE.0) GO TO 15                                               26  185
      CALL TIMEM(CTIM)                                                      26  186
      IF(SHTFL.EQ.0) GO TO 11                                               26  187
      DO 10 I =1, 3                                                         26  188
      DATE(I) = CTIM(I)                                                     26  189
   10 CONTINUE                                                              26  190
      TIME = CTIM(4)                                                        26  191
      GO TO 13                                                              26  192
   11 CONTINUE                                                              26  193
      DO 12 I =1, 3                                                         26  194
      DATE(I) = PRVD(I)                                                     26  195
   12 CONTINUE                                                              26  196
      TIME = EBDT                                                           26  197
      DAYWK = DAYWK + 1                                                     26  198
      IF(DAYWK.GT.7) DAYWK = 1                                              26  199
   13 CONTINUE                                                              26  200
```

```
      HD21(5) = BLNKS                                                   26  201
      HD21(6) = BLNKS                                                   26  202
      DO 14 I = 1,4                                                     26  203
      CALL GETBY(TSUA,I   ,ICH)                                         26  204
      CALL PTBY(HD21,I+17,ICH)                                          26  205
 14   CONTINUE                                                          26  206
      TBSU = TBSU1                                                      26  207
      CALL EISRT(EBDC,HD31(4))                                          26  208
      IF(IPGKY.NE.0) GO TO 10D1                                         26  209
C.... DEDICATE THE LINE PRINTER                                         26  210
C                                                                       26  211
      CALL CAL15                                                        26  212
C                                                                       26  213
C                                                                       26  214
      CALL TSTLP(STLP)                                                  26  215
      IF(STLP.EQ.1) GO TO 60                                            26  216
      PAGNM = 0                                                         26  217
C.... HERE PLACE END OF DAY HEADER INTO LINE PRINTER BUFFER             26  218
 15   CONTINUE                                                          26  219
C.... SET LP CODE AND SPACE 0 LINES                                     26  220
      LNDEX = LNDEX + 59                                                26  221
      NBYTE = 18                                                        26  222
      CALL STMSG (2,IBNDX,LCNT,LNDEX,HD11,NBYTE)                        26  223
      CALL STMSG (4,IBNDX,LCNT,LNDEX,   0,    0)                       26  224
      LNDEX = LNDEX + 48                                                26  225
      NBYTE = 36                                                        26  226
      CALL STMSG (2,IBNDX,LCNT,LNDEX,HDA ,NBYTE)                        26  227
      CALL STMSG (4,IBNDX,LCNT,LNDEX,   0,    0)                       26  228
      LNDEX = LNDEX + 31                                                26  229
      NBYTE = 21                                                        26  230
      CALL STMSG(3,IBNDX,LCNT,LNDEX,HD21,NBYTE)                         26  231
      LNDEX = LNDEX + 31                                                26  232
      NBYTE = 21                                                        26  233
      CALL STMSG(2,IBNDX,LCNT,LNDEX,HD31,NBYTE)                         26  234
      CALL STMSG(4,IBNDX,LCNT,LNDEX,   0,    0)                       26  235
      LNDEX = LNDEX + 16                                                26  236
      NBYTE = 106                                                       26  237
      CALL STMSG(2,IBNDX,LCNT,LNDEX,HD41,NBYTE)                         26  238
      LNDEX = LNDEX + 25                                                26  239
      NBYTE = 96                                                        26  240
      CALL STMSG(2,IBNDX,LCNT,LNDEX,HD51,NBYTE)                         26  241
      CALL STMSG(4,IBNDX,LCNT,LNDEX,   0,    0)                       26  242
C.... HERE COLLECT LINK DATA AND PLACE INTO LINE PRINTER BUFFER         26  243
      IF(IPGKY.NE.0) GO TO 10D1                                         26  244
      DLSUM = 0                                                         26  245


      NLSS  = 0                                                         26  246
      NLIS  = 0                                                         26  247
      NLSPS = 0                                                         26  248
      BSUM  = 0                                                         26  249
      GSUM  = 0                                                         26  250
      SSUM  = 0                                                         26  251
      STPSM = 0                                                         26  252
      TTSUM = 0                                                         26  253
      VSUM  = 0                                                         26  254
C.... L99P1                                                             26  255
      ILNKP=1                                                           26  256
 16   CONTINUE                                                          26  257
      DLSCT = 0                                                         26  258
      NLS   = 0                                                         26  259
      NLI   = 0                                                         26  260
      NLSPT = 0                                                         26  261
      BSECT = 0                                                         26  262
      GSECT = 0                                                         26  263
      SSECT = 0                                                         26  264
      STPSC = 0                                                         26  265
      TTSCT = 0                                                         26  266
      VSECT = 0                                                         26  267
      DBUF(1) = TXS(1)                                                  26  268
      DBUF(2) = TXS(2)                                                  26  269
      CALL EISRT( JJ,DA)                                                26  270
      DBUF(3) = DA(2)                                                   26  271
      CALL HALF(LNKS1,JJ+1,LIM)                                         26  272
C.... L99P2                                                             26  273
 17   CONTINUE                                                          26  274
      CALL HALF(SCTLN,ILNKP,LNKPT)                                      26  275
      LNKPT=LNKPT+1                                                     26  276
      CALL GETBY(NDBL,LNKPT,NDTL)                                       26  277
      IF(NDTL.EQ.0) GO TO 29                                            26  278
      NLS = NLS + 1                                                     26  279
      NLSS = NLSS + 1                                                   26  280
      CALL HALF(VDAY,LNKPT,INCV)                                        26  281
      VSECT = VSECT + INCV                                              26  282
      VSUM  = VSUM  + INCV                                              26  283
      CALL HALF(BDAY,LNKPT,INC)                                         26  284
      BPC = INC/NRPT                                                    26  285
      BSECT = BSECT + BPC                                               26  286
      BSUM  = BSUM  + BPC                                               26  287
      CALL GETBY(MBEIF,LNKPT,ITST1)                                     26  288
      CALL GETBY(DFAIL,LNKPT,ITST2)                                     26  289
      IF(ITST1.EQ.0 .OR. ITST2.EQ.0) GO TO 18                           26  290
      AVSP = 0                                                          26  291
      TTTMP = 0                                                         26  292
      GO TO 19                                                          26  293
 18   CONTINUE                                                          26  294
      NLSPT = NLSPT + 1                                                 26  295
      NLSPS = NLSPS + 1                                                 26  296
      CALL HALF(SDAY,LNKPT,TMPS)                                        26  297
      AVSP = (TMPS*4)/NRPT                                              26  298
      SSECT = SSECT + AVSP                                              26  299
      SSUM  = SSUM  + AVSP                                              26  300
      CALL HALF(D,LNKPT,IDBL)                                           26  301
      TTTMP = (INCV*IDBL*128) / (AVSP*5280)*8                           26  302
```

```
   19 CONTINUE                                                          26  303
      TTSCT = TTSCT + TTTMP                                             26  304
      TTSUM = TTSUM + TTTMP                                             26  305
C**** HERE CONVERT INTO OUTPUT FORMAT AND STORE INTO LPBUF              26  306
      CALL E1SRT(LNKPT,DA)                                              26  307
      DBUF(5) = DA(2)                                                   26  308
      CALL E1SRT(INCV,DBUF(7))                                          26  309
      CALL SBYTC(DBUF(7),1)                                             26  310
      CALL DECBN(TTTMP,5,DBUF(11))                                      26  311
      CALL SBYTC(DBUF(11),2)                                            26  312
      CALL DECBN(MPC,2,DBUF(22))                                        26  313
      CALL SBYTC(DBUF(22),2)                                            26  314
      CALL DECBN(AVSP,5,DBUF(29))                                       26  315
   26 CONTINUE                                                          26  316
C**** PRINT1                                                            26  317
      DBUF(15) = BLNKS                                                  26  318
      DBUF(18) = BLNKS                                                  26  319
      DBUF(19) = BLNKS                                                  26  320
      DBUF(20) = BLNKS                                                  26  321
      DBUF(26) = BLNKS                                                  26  322
   27 CONTINUE                                                          26  323
C**** CLEARDAY                                                          26  324
      LNDEX = LNDEX + 1                                                 26  325
      NBYTE = 120                                                       26  326
      CALL STMSG(2,IBNDX,LCNT,LNDEX,DBUF,NBYTE)                         26  327
      ILNKP=ILNKP+1                                                     26  328
      IF(LCNT.GE.53) GO TO 32                                           26  329
      DBUF(1) = BLNKS                                                   26  330
      DBUF(2) = BLNKS                                                   26  331
      DBUF(3) = BLNKS                                                   26  332
C**** LOOP3                                                             26  333
   28 CONTINUE                                                          26  334
      IF(ILNKP.LE.LIM) GO TO 17                                         26  335
      IF(LCNT.LT.49) GO TO 30                                           26  336
      GO TO 32                                                          26  337
   29 CONTINUE                                                          26  338
      ILNKP=ILNKP+1                                                     26  339
      GO TO 28                                                          26  340
C**** HERE CALCULATE TOTALS AND AVERAGES FOR SECTION                    26  341
   30 CONTINUE                                                          26  342
      AVSP = SSECT/NLSPT                                                26  343
      TTTMP= TTSCT/NLSPT                                                26  344
      MPC  = MSECT/NLS                                                  26  345
      DBUF(1) = TXT(1)                                                  26  346
      DBUF(2) = TXT(2)                                                  26  347
      DBUF(5) = BLNKS                                                   26  348
      CALL E1SRT(VSECT,DBUF( 7))                                        26  349
      CALL SBYTC(DBUF( 7),1)                                            26  350
      CALL DECBN(TTSCT,5,DBUF(11))                                      26  351
      CALL SBYTC(DBUF(11), 2)                                           26  352
      CALL STMSG(4,IBNDX,LCNT,LNDEX,   D,    C)                         26  353
      LNDEX = LNDEX + 1                                                 26  354
      NBYTE = 80                                                        26  355
      CALL STMSG(2,IBNDX,LCNT,LNDEX,DBUF,NBYTE)                         26  356
      DBUF(1) = TXA(1)                                                  26  357
      DBUF(2) = TXA(2)                                                  26  358
      DBUF(7) = BLNKS                                                   26  359
      DBUF(8) = BLNKS                                                   26  360
      CALL DECBN(TTTMP,5,DBUF(11))                                      26  361
      CALL SBYTC(DBUF(11),2)                                            26  362
      CALL DECBN(MPC,2,DBUF(22))                                        26  363
      CALL SBYTC(DBUF(22),2)                                            26  364
      CALL DECBN(AVSP,5,DBUF(29))                                       26  365
      CALL STMSG(4,IBNDX,LCNT,LNDEX,   D,    O)                         26  366
      LNDEX = LNDEX + 1                                                 26  367
      NBYTE = 120                                                       26  368
      CALL STMSG(2,IBNDX,LCNT,LNDEX,DBUF,NBYTE)                         26  369



      CALL STMSG(4,IBNDX,LCNT,LNDEX,   D,    C)                         26  370
      IF(JJ.GE.NMSCT) GO TO 35                                          26  371
      IF(LCNT.GE.52)  GO TO 34                                          26  372
      JJ = JJ + 1                                                       26  373
      GO TO 16                                                          26  374
C**** HERE PRINT OUT SYSTEM PERFORMANCE                                 26  375
   31 CONTINUE                                                          26  376
      CALL STMSG(4,IBNDX,LCNT,LNDEX,   D,    O)                         26  377
      LNDEX = LNDEX +2                                                  26  378
      NBYTE = 124                                                       26  379
      CALL STMSG (2,IBNDX,LCNT,LNDEX,HD12,NBYTE)                        26  380
      LNDEX = LNDEX +2                                                  26  381
      NBYTE = 124                                                       26  382
      CALL STMSG (2,IBNDX,LCNT,LNDEX,HD22,NBYTE)                        26  383
      CALL STMSG (4,IBNDX,LCNT,LNDEX,   C,    O)                        26  384
      BPC = BSUM/NLSS                                                   26  385
      AVSP = SSUM/NLSPS                                                 26  386
      CALL E1SRT(VSUM,DBUF(7))                                          26  387
      CALL SBYTC(DBUF(7),1)                                             26  388
      CALL DECBN(TTSUM,5,DBUF(11))                                      26  389
      CALL SBYTC(DBUF(11),1)                                            26  390
      CALL DECBN(MPC,2,DBUF(22))                                        26  391
      CALL SBYTC(DBUF(22),1)                                            26  392
      CALL DECBN(AVSP,5,DBUF(29))                                       26  393
      LNDEX = LNDEX +2                                                  26  394
      NBYTE = 120                                                       26  395
      CALL STMSG (2,IBNDX,LCNT,LNDEX,DBUF,NBYTE)                        26  396
      IBNX = IBNX + 1                                                   26  397
      GO TO 33                                                          26  398
   32 CONTINUE                                                          26  399
      IPGNY = IPGNY + 1                                                 26  400
   33 CONTINUE                                                          26  401
      CALL PRNTF(LCNT)                                                  26  402
      MAST(IMAST)=2                                                     26  403
      GO TO 110                                                         26  404
```

```
 34   CONTINUE                                                          26  405
      NWSEC = NWSEC + 1                                                 26  406
      IPGRY = IPGRY + 1                                                 26  407
      GO TO 33                                                          26  408
C**** RETURN1                                                           26  409
 1001 CONTINUE                                                          26  410
      IPGRY = IPGRY - 1                                                 26  411
      IF(NWSEC.NE.0) GO TO 1002                                         26  412
      GO TO 28                                                          26  413
 1002 CONTINUE                                                          26  414
      NWSEC = NWSEC + 1                                                 26  415
      JJ = JJ + 1                                                       26  416
      GO TO 16                                                          26  417
 25   CONTINUE                                                          26  418
      IBRX = IBRX + 1                                                   26  419
      IPGRY = 0                                                         26  420
      GO TO 23                                                          26  421
C**** HERE PRINT OUT END OF DAY SECTION SUMMARY                         26  422
 40    CONTINUE                                                         26  423
C     PRINT PREDICTOR STATISTICS                                        26  424
      CALL PRPRED                                                       26  425
      GO TO 110                                                         26  426
C**** HERE PRINT OUT END OF DAY ZONE SUMMARY                            26  427
 50   CONTINUE                                                          26  428
      IBRX = IBRX + 1                                                   26  429
      GO TO 60                                                          26  430
C**** ENDRPT                                                            26  431
 100  CONTINUE                                                          26  432
C     CONTINUE                                                          26  433
      DO 62 IZ = 1,NZONE                                                26  434
      CALL PTHLP(VDAY,IZ,0)                                             26  435
      CALL PTHLP(MDAY,IZ,0)                                             26  436
      CALL PTHLP(SDAY,IZ,0)                                             26  437
 62   CONTINUE                                                          26  438
      LAST(ILAST)=0                                                     26  439
      GO TO 130                                                         26  440
      END                                                               26  441
```

2.6.31 SUBROUTINE PRPRED

```
ROUTINE:  PRPRED

C     *   PRPRED                                                                  27    1
      SUBROUTINE PRPRED                                                           27    2
      COMMON/BLK4/ STAT(9,2,50),DUMMY(252),NL                                     27    3
      COMMON /BLK6 /  FMC          ,  FMARK        ,  MAST(9)     ,               27    4
     * AMAST        ,  JMAST        ,  KMAST        ,  EMAST       ,               27    5
     * WMAST        ,  XMAST        ,  QMAST        ,  IMAST       ,               27    6
     * SPACE        ,  MPGKY        ,  QCNT                                       27    7
      COMMON /ISUB1/ IBRX,NWSEC,IPGKY                                             27    8
      DIMENSION LABEL(4,2),BUT(900),ST(9),TOTAL(9)                                27    9
      DIMENSION CHR(275,2)                                                        27   10
      DIMENSION INUM(4)                                                           27   11
      DIMENSION NUM(4)                                                            27   12
      DIMENSION IPPHD(10), IPPHD1(24), IPPHD2(22), IPPHD3(17),                    27   13
     1   IPPHD4(2), IPPHD5(10), IPPHD6(2), BLAR(9), ITLB(50)                      27   14
      REAL M1,M2                                                                  27   15
      COMMON/BLTOT/M1,M2,RM1,RM2,SS,AM1,P05,P10,P20                               27   16
      EQUIVALENCE (ST,M1)                                                         27   17
      EQUIVALENCE (BUT,STAT)                                                      27   18
      EQUIVALENCE (INUM,NUM)                                                      27   19
      EQUIVALENCE( M1, BLAR(1))                                                   27   20
      INTEGER BLANK, BLKBYT, STAR, PPIBF                                          27   21
      DATA BLANK, BLKBYT, STAR, NEGSGN, IDEC/'    ','0','****','-  ',           27   22
     1 '   .'/                                                                    27   23
      DATA PPIBF/ 1/                  *                                           27   24
      INTEGER ZERO, CFLG                                                          27   25
      DATA ZERO/'0000'/                                                           27   26
      DATA LABEL/'  TA','NSTP',' VAL','UME ',' ','TANS','TP S','PEED'             27   27
     C/                                                                           27   28
      DATA NWSTAT/900/                                                            27   29
      DATA NSTAT/50/                                                              27   30
      DATA IPPHD/'    ',' ',' ',' ',' PRE','DICT','OR S',                         27   31
     1           'TATI','STIC','S  '/                                             27   32
      DATA IPPHD1/' LIN','K  ',' NB',',  ',' ','AVG ',' ','  ',                   27   33
     1           ' STD',' ',' AV','G  ',' S','TO  ',' ',                          27   34
     2           'RMS ',' ',' AVG',' ',' PRB','B  ',' PR',                        27   35
     3           'OB  ',' P',' RMS '/                                             27   36
      DATA IPPHD2/'PRED',' ',' ERR',' OR ',' D',' EV ',' ',                       27   37
     1           'REL ',' ',' DEV',' ',' RE','L  ',' A',                          27   38
     2           'NS  ',' ','NEL ',' ',' REL',' ',' RE',                         27   39
     3           'L   '/                                                          27   40
      DATA IPPHD3/ 'ERRO',' R  ',' ERR',' OR ',' R',' EL ',' F',                  27   41
     1           'RROR',' ',' ERR',' R  ',' ERR',' OR ',' ER',                    27   42
     2           'OR ',' E',' RROR'/                                              27   43
      DATA IPPHD4/ 'ERRO',' F  '/                                                 27   44
      DATA IPPHD5/'GT .',' 05  ',' GT ',' .10 ',' GT',' .20',' ',                 27   45
     1           ' CUR','RECT',' IN '/                                            27   46
      GO TO ( 1, 12, 49),PPIBF                                                    27   47
    1 PPIBF = 1                                                                   27   48
      CALL GETBY( BLANK, 1, BLKBYT)                                               27   49
      NN=0                                                                        27   50
      CALL BUFFER IN(18,1,CHR,550,II,NN)                                          27   51
      J = 1                                                                       27   52
   11 IF( J .GT. 2)  GO TO 50                                                     27   53
      IUNIT = 12                                                                  27   54
      LL=0                                                                        27   55
      LINE=4                                                                      27   56
      DO 2 L=1,9                                                                  27   57
    2 TOTAL(L)=0.0                                                                27   58
    4 IF( IUNIT .GT. 17)  GO TO 40                                                27   59
      CALL BUFFER IN(IUNIT,1,STAT,NWSTAT,II,NN)                                   27   60
      I = 1                                                                       27   61
    5 IF( I .GT. NSTAT)  GO TO 20                                                 27   62
      LL=LL+1                                                                     27   63
      IF(LL.GT.NL) GO TO 42                                                       27   64
      N=STAT(I,J,1)                                                               27   65
      IF( N .LE. 0)  GO TO 100                                                    27   66
      M1=STAT(2,J,I)/N                                                            27   67
      Y=STAT(3,J,I)/N-M1**2                                                       27   68
      IF(Y.LT.0.) Y=0.0                                                           27   69
      M2=SQRT(Y)                                                                  27   70
      RM1=STAT(4,J,I)/N                                                           27   71
      Y=STAT(5,J,I)/N-RM1**2                                                      27   72
      IF(Y.LT.0.0) Y=0.0                                                          27   73
      RM2=SQRT(Y)                                                                 27   74
      SS=SQRT(RM1**2+RM2**2)                                                      27   75
      AM1=STAT(6,J,I)/N                                                           27   76
      P05=STAT(7,J,I)/N                                                           27   77
      P10=STAT(8,J,I)/N                                                           27   78
      P20=STAT(9,J,I)/N                                                           27   79
      DO 6  IND1 = 1, 9                                                           27   80
      TEMP = ABS( BLAR(IND1))                                                     27   81
      IF( TEMP .GT. 9999.0)  GO TO 100                                            27   82
    6 CONTINUE                                                                    27   83
      IF( CHR( LL, J) .GT. 9999999.0)  GO TO 100                                  27   84
      DO 7 L=1,9                                                                  27   85
    7 TOTAL(L) =TOTAL(L)+ST(L)                                                    27   86
      IF(LINE.NE.40) GO TO 15                                                     27   87
      LINE=0                                                                      27   88
      IF( PPIBF .EQ. 1 )  GO TO 12                                                27   89
      CALL PRNTF( LCNT )                                                          27   90
      MAST(IMAST)=2                                                               27   91
      RETURN                                                                      27   92
C                     CLEAR LINE PRINTER BUFFER                                   27   93
   12 IBMT = 5                                                                    27   94
```

```
      PPI8F = 2                                                          27   95
      IBNDX = 1                                                          27   96
      LCNT = 1                                                           27   97
      LNDEX = 7220                                                       27   98
      NBYT = 1                                                           27   99
      CALL STMSG( I8PT, IBNDX, LCNT, LNDEX, IPPHD, NBYT)                 27  100
C                     PRINT TITLE
          DO 13  INDEX = 1, 4                                            27  102
          IPPHD(INDEX) = LABEL( INDEX, J)                                27  103
   13     CONTINUE                                                       27  104
      I8PT = 2                                                           27  105
      NBYT = 40                                                          27  106
      LNDEX = 38                                                         27  107
      CALL STMSG( I8PT, IBNDX, LCNT, LNDEX, IPPHD, NBYT)                 27  108
C                     SKIP A LINE
      I8PT = 4                                                           27  110
      CALL STMSG( I8PT, IBNDX, LCNT, LNDEX, IPPHD, NBYT)                 27  111
C                     PRINT  LABELS
      I8PT = 2                                                           27  113
      LNDEX = LNDEX + 7                                                  27  114
      NBYT = 96                                                          27  115
      CALL STMSG( I8PT, IBNDX, LCNT, LNDEX, IPPH01, NBYT )               27  116
      LNDEX = LNDEX + 17                                                 27  117
      NBYT = 88                                                          27  118
      CALL STMSG( I8PT, IBNDX, LCNT, LNDEX, IPPHD2, NBYT )               27  119
      LNDEX = LNDEX + 35                                                 27  120
      NBYT = 68                                                          27  121


      CALL STMSG( I8PT, IBNDX, LCNT, LNDEX, IPPHD3, NBYT )               27  122
      LNDEX = LNDEX + 52                                                 27  123
      I8PT = 3                                                           27  124
      NBYT = 8                                                           27  125
      CALL STMSG( I8PT, IBNDX, LCNT, LNDEX, IPPHD4, NBYT )               27  126
      I8PT = 2                                                           27  127
      LNDEX = LNDEX + 19                                                 27  128
      NBYT = 40                                                          27  129
      CALL STMSG( I8PT, IBNDX, LCNT, LNDEX, IPPHD5, NBYT )               27  130
      I8PT = 4                                                           27  131
      CALL STMSG( I8PT, IBNDX, LCNT, LNDEX, ITLB, NBYT)                  27  132
   15 LINE = LINE + 1                                                    27  133
      ENCODE (120,2001,ITLB(2)) LL,N,M1,M2,RM1,RM2,SS,AM1,P05,P10,P20,   27  134
     1 C9R(LL,J)                                                         27  135
 2001 FORMAT( 1X,I4,I9,2F9.2,7F9.3,F15.2)                                27  136
      I8PT = 2                                                           27  137
      NBYT = 113                                                         27  138
      LNDEX = LNDEX + 3                                                  27  139
      CALL STMSG( I8PT, IBNDX, LCNT, LNDEX, ITLB, NBYT)                  27  140
  100 I = I + 1                                                          27  141
      GO TO 5                                                            27  142
20    CONTINUE                                                           27  143
      IUNIT = IUNIT + 1                                                  27  144
      GO TO 4                                                            27  145
40    CONTINUE                                                           27  146
42    CONTINUE                                                           27  147
      DO 43 L=1,9                                                        27  148
43    TOTAL(L)=TOTAL(L)/NL                                               27  149
      ENCODE (120,2002,ITLB(2)) TOTAL                                    27  150
 2002 FORMAT ( ' TOTALS',7X,2F9.2,7F9.3)                                 27  151
C                     SKIP A LINE
      I8PT = 4                                                           27  153
      CALL STMSG( I8PT, IBNDX, LCNT, LNDEX, ITLB, NBYT)                  27  154
C                     PRINT LINE
      I8PT = 2                                                           27  156
      NBYT = 100                                                         27  157
      LNDEX = LNDEX + 3                                                  27  158
      CALL STMSG( I8PT, IBNDX, LCNT, LNDEX, ITLB, NBYT)                  27  159
      PPI8F = 3                                                          27  160
      CALL PRNTF( LCNT)                                                  27  161
      MAST(IMAST)=2                                                      27  162
      RETURN                                                             27  163
   49 J = J + 1                                                          27  164
      PPI8F = 1                                                          27  165
      GO TO 11                                                           27  166
50    CONTINUE                                                           27  167
      DO 70 I=1,NWSTAT                                                   27  168
70    BUT(I)=0.0                                                         27  169
      DO 75 I=12,17                                                      27  170
      CALL BUFFER BUT(I,1,BUT,NWSTAT,II,NN)                              27  171
73    IF(II.NE.2) GO TO 73                                               27  172
75    CONTINUE                                                           27  173
      IBRX=IBRX+1                                                        27  174
      MAST(IMAST)=1                                                      27  175
      RETURN                                                             27  176
      END                                                                27  177
```

2.6.32 ROUTINE J

```
RBUTINE1  RTNJ

      C   *   RTNJ                                                                  34    1
          SUBROUTINE RTNJ                                                          34    2
      C**** MAP CONTROL ROUTINE                                                    34    3
          INTEGER CNDIS, MBLD, CMALF, THRSH, VBL, SBAR, JBAR, DELAY, SRDIS         34    4
          INTEGER CICEF,CMMAL,DMALF,PRCBD                                          34    5
          INTEGER AMCC                                                             34    6
          COMMON /BLK1S/  CHSET       ,  MBUFL       ,  IGPI        ,            34    7
         * MNUMF        ,  NBITH       ,  NC422       ,  NCADD       ,            34    8
         * NCARD        ,  NMANP       ,  NMCTL       ,  NMLNK       ,            34    9
         * NMSCT        ,  NMVED       ,  NPATB       ,  NPS4        ,            34   10
         * NRESP        ,  NSTM1       ,  TBSIZ       ,  TBYTE       ,            34   11
         * CS           ,  DS          ,  FS          ,  NS          ,            34   12
         * QS           ,  RS          ,  SS          ,  SCS                      34   13
          COMMON /BLK17/  ADVNH(8)    ,  CICBP(8)    ,  CPABJ(8)    ,            34   14
         * IADVP(8)     ,  CNTCR(124)  ,  CNTNM       ,  ILP         ,            34   15
         * INTNM(31)    ,  ITNML(31)   ,  INTBU(32)   ,  KL2         ,            34   16
         * STBTM(32), TIMEB(32), GVBK(69)                                         34   17
          COMMON /BLK18/  CICTF(8)    ,  CTBOF(8)    ,  STBYD(8)    ,            34   18
         * CMNTB(62)    ,  CURBF(31)   ,  CYCLC(31)   ,  ENINT(496)  ,            34   19
         * ENBFF(31)    ,  GGGT(124)   ,  GAATP(31)   ,  GBATP(31)   ,            34   20
         * GLABC(124)   ,  GGGG(124)   ,  GUABC(124)  ,  INTOU(496)  ,            34   21
         * SSSS(124)    ,  TKM(31)     ,  WRKBF(31)                               34   22
          COMMON /BLK19/ CC2(129), OFAIL(69), DBF(17),                             34   23
         * MI(31)       ,  RAAMC(2S8)  ,  RAWSP(2S8)  ,  RTC         ,            34   24
         * TSTRT(S16)                                                             34   25
          COMMON /BLK24/ AMIST(138), CNDIS, DCF,                                   34   26
         * DMA          ,  FMTBD       ,  FSTFL       ,  HLIDF       ,            34   27
         * HLIDT(96)    ,  NHDAY       ,  PRCBD       ,  PTN(745)    ,            34   28
         * SMTFL, SRDIS, THRSH, WMIST(138)                                         34   29
          COMMON /BLK25/ AMCC(138), CMMAL(17), CMTAB(2S8),                         34   30
         * DTTAB(258)   ,  DIS(17)     ,  DMALF(17)   ,  DMBDE       ,            34   31
         * FLTAB(800)   ,  HRF         ,  MBOES       ,  NAI         ,            34   32
         * NBFAL, SBAR(69), SECFC(4), SCDFC(4), VBL(138)                          34   33
          COMMON /BLK27/IDTOP(259), LKDSP(136)                                     34   34
          COMMON/BLK28/AGR(14),PIA(6),RCM(2),HSB(14),APBMI(14),CPNBU,CPNBT,        34   35
         * MARR(840)    ,  HMAP(2)     ,  JCNT        ,  KCNT        ,            34   36
         * MNC15        ,  WHSBF       ,  CLBCK       ,  WMINF       ,            34   37
         * MINCT        ,  TAB(3)      ,  NBNB(8)                                 34   38
          DIMENSION LMAP(840), ICTPR(8 ), LNKAR(128), KXD(1)                       34   39
          DIMENSION MBLO(16), CICEF(8), CMALF(8)                                   34   40
          EQUIVALENCE (MBLO(1), HSB(1))                                            34   41
          EQUIVALENCE (CICEF(1), CICBP(1))                                         34   42
          EQUIVALENCE (CMALF(1), CICTF(1))                                         34   43
          EQUIVALENCE (MARR(1), LMAP(1))                                           34   44
          JCNT=6                                                                   34   45
          IF(CNDIS-1) 1, 2, 3                                                      34   46
      C**** A-PHASE GREEN                                                          34   47
      C                                   A                                        34   48
        1 CONTINUE                                                                 34   49
          CALL CDL( 0, 0, 15, LMAP)                                                34   50
          GO TO 11                                                                 34   51
      C**** CONTROLLERS OFF                                                        34   52
      C                                   B                                        34   53
        2 CONTINUE                                                                 34   54
          CALL CDL(1,1,0,LMAP)                                                     34   55
          GO TO 11                                                                 34   56
        3 CONTINUE                                                                 34   57
          IF(CNDIS-3) 4, 6, 8                                                      34   58
      C**** CONTROLLER STATUS                                                      34   59
      C                                   C                                        34   60
        4 CONTINUE                                                                 34   61
          CALL CDL(1,0,1,LMAP)                                                     34   62
          DO 5 N = 1, NCARD                                                        34   63
          ICTPR(N) = MBLD(2*N)                                                     34   64
        5 CONTINUE                                                                 34   65
          GO TO 10                                                                 34   66
      C**** CONTROLLERS FAILED                                                     34   67
      C                                   D                                        34   68
        6 CONTINUE                                                                 34   69
          CALL CDL(1,0,4,LMAP)                                                     34   70
          DO 7 N = 1, NCARD                                                        34   71
          ICTPR(N) = -CMALF(2*N) - 1                                               34   72
        7 CONTINUE                                                                 34   73
          GO TO 10                                                                 34   74
        8 CONTINUE                                                                 34   75
          IF(CNDIS-NE-4) GO TO 11                                                  34   76
      C**** CIC STATUS                                                             34   77
      C                                   E                                        34   78
          CALL CDL(1,0,2,LMAP)                                                     34   79
          DO 9 N = 1, NCARD                                                        34   80
          ICTPR(N) = CICEF(2*N)                                                    34   81
        9 CONTINUE                                                                 34   82
       10 CONTINUE                                                                 34   83
          CALL CLS(NMCTL,LMAP,ICTPR)                                               34   84
      C                                   G                                        34   85
       11 CONTINUE                                                                 34   86
      C**** DETERMINE THE SURVEILLANCE DISPLAY DESIRED                             34   87
          NL = 512/(NBMCM/8)                                                       34   88
          DO 12 N = 1,NL                                                           34   89
          LNKAR(N) = 0                                                             34   90
       12 CONTINUE                                                                 34   91
          IF(SRDIS-EQ-0) GO TO 13                                                  34   92
          IF(SRDIS-EQ-1) GO TO 14                                                  34   93
          GO TO 20                                                                 34   94
      C**** SURVEILLANCE DISPLAY OFF                                               34   95
      C                                   G1                                       34   96
       13 CONTINUE                                                                 34   97
          MTMLO = 0                                                                34   98
```

```
      CALL BCOTH (MTHLO,LMAP)                                          34   99
      CALL SDL( 0,LMAP)                                                34  100
      GO TO 18                                                         34  101
C**** TCS SURVEILLANCE EQUIPMENT FAILED                                34  102
C                                     H                                34  103
 14   CONTINUE                                                         34  104
      MTHLO = 0                                                        34  105
      CALL BCOTH (MTHLO,LMAP)                                          34  106
      CALL SDL(13,LMAP)                                                34  107
      IX = 0                                                           34  108
      DO 17 JZ = 1, NMVED                                              34  109
      IX = IX + 1                                                      34  110
      CALL GETBI(DMALF,IX,KZ,0)                                        34  111
      IF(KZ.NE.0) GO TO 15                                             34  112
      CALL GETBI(CMMAL,IX,KZ,0)                                        34  113
      IF(KZ.EQ.0) GO TO 16                                             34  114
 15   CONTINUE                                                         34  115
      CALL HALF(IDTDP,IX,KZ)                                           34  116
      CALL PTBY(LNKAR,KZ,8)                                            34  117
 16   CONTINUE                                                         34  118
 17   CONTINUE                                                         34  119
C**** INSERT LNKAR ARRAY STATE BITS INTO LMAP ARRAY                    34  120
C                                     L                                34  121


 18   CONTINUE                                                         34  122
      IX = 32*329                                                      34  123
      DO 19 I = 1, 256                                                 34  124
      CALL HALF(LNKAR,I,KZ)                                            34  125
      KXD(1)=(KZ*2**6+KZ)*2**8                                         34  126
      CALL GETBI(KXD,5,KX1,0)                                          34  127
      CALL GETBI(KXD,21,KX,0)                                          34  128
      CALL PTBI (LMAP,IX+5,KX1,0)                                      34  129
      CALL PTBI (LMAP,IX+21,KX,0)                                      34  130
      IX = IX + 64                                                     34  131
 19   CONTINUE                                                         34  132
      GO TO 27                                                         34  133
C**** FLOW DATA                                                        34  134
C**** DETERMINE PARAMETERS                                             34  135
 20   CONTINUE                                                         34  136
      MTHLO = THRSH                                                    34  137
      IF(PRCDO.LE.0) GO TO 21                                          34  138
      IF(PRCDO-2)22,23,27                                              34  139
C**** OCCUPANCY                                                        34  140
C                                     K                                34  141
 21   CONTINUE                                                         34  142
      CALL SDL( 5,LMAP)                                                34  143
      ITHRT=(THRSH*2**15)/100.                                         34  144
      CALL TCSLP(AHCC , ITHRT, 0, NMLNK, LKDSP, LNKAR, LMAP, THRSH)    34  145
      GO TO 18                                                         34  146
C**** VOLUME                                                           34  147
C                                     N                                34  148
 22   CONTINUE                                                         34  149
      CALL SDL( 6,LMAP)                                                34  150
      ITHRT = THRSH*2                                                  34  151
      CALL TCSLP(VOL , ITHRT, 0, NMLNK, LKDSP, LNKAR, LMAP, THRSH)     34  152
      GO TO 18                                                         34  153
C**** SPEED                                                            34  154
C                                     S                                34  155
 23   CONTINUE                                                         34  156
      CALL SDL( 7,LMAP)                                                34  157
      ITHRT = THRSH*4                                                  34  158
      CALL TCSLP(SBAR, ITHRT, 1, NMLNK, LKDSP, LNKAR, LMAP, THRSH)     34  159
      GO TO 18                                                         34  160
 27   CONTINUE                                                         34  161
      RETURN                                                           34  162
      END                                                              34  163
```

2.6.33 SUBROUTINE BCDTH

```
ROUTINE:  BCDTH

C   *    BCDTH                                                    35    1
     SUBROUTINE BCDTH (MX,LA)                                     35    2
C**** ROUTINE TO ENTER THRESHOLD VALUE IN MAP ARRAY               35    3
C    EMPLOYED BY ROUTINE J                                        35    4
     DIMENSION LA(1)                                              35    5
     IOFS = 32033                                                 35    6
     M = MX                                                       35    7
     MD = M                                                       35    8
     KZ = 16                                                      35    9
     DO 2 K = 1, 4                                                35   10
     MQ = MD/10                                                   35   11
     MR = MD - 10*MQ                                              35   12
     DO 1 I = 1, 4                                                35   13
     MC = MR/2                                                    35   14
     MB = MR - 2*MC                                               35   15
     IX = 64**(KZ*I) + IOFS + 5                                   35   16
     CALL PTOI (LA,IX,MB,0)                                       35   17
     KZ = KZ-1                                                    35   18
     MR = MC                                                      35   19
 1   CONTINUE                                                     35   20
     MD = MQ                                                      35   21
 2   CONTINUE                                                     35   22
     RETURN                                                       35   23
     END                                                          35   24
```

2.6.34 SUBROUTINE CDL

```
RBUTINE:  CDL

      C   *   CDL                                                          39    1
          SUBROUTINE CDL(I,J,K,LA)                                         39    2
      C**** ROUTINE TO SET CONTROLLER DISPLAY SWITCHES AND LEGENDS.        39    3
      C     PROCEDURE EMPLOYED BY RBUTINE J.                               39    4
      C               LEGEND 1 = CONTROLLER STATUS                         39    5
      C               LEGEND 2 = CIC STATUS                                39    6
      C               LEGEND 3 = GPS CONTROLLER STATUS                     39    7
      C               LEGEND 4 = CONTROLLERS FAILED                        39    8
          DIMENSION LA(1)                                                  39    9
          CALL PTBI(LA, 37,I,0)                                            39   10
          CALL PTBI(LA,101,J,0)                                            39   11
          DO 1  IX = 1, 4                                                  39   12
          KX = 0                                                           39   13
          IF(IX.EQ.K) KX = 1                                               39   14
          IA = 64*(IX-1) + 165                                             39   15
          CALL PTBI(LA,IA,KX,0)                                            39   16
        1 CONTINUE                                                         39   17
          KX = 0                                                           39   18
          IF (K .EQ. 15)  KX = 1                                           39   19
          IA = 2085                                                        39   20
          CALL PTBI( LA, IA, KX, 0)                                        39   21
          RETURN                                                           39   22
          END                                                              39   23
```

2.6.35 SUBROUTINE CLS

```
ROUTINE:  CLS

C     *    CLS                                                        37    1
      SUBROUTINE CLS(N,LA,IC)                                         37    2
C**** ROUTINE TO SET CONTROLLER LAMP STATES                           37    3
C     EMPLOYED BY ROUTINE J                                           37    4
      DIMENSION LA(1), IC(1)                                          37    5
      I = N                                                           37    6
      J = 1                                                           37    7
      K = 1                                                           37    8
      IOFST = 97*32                                                   37    9
    1 CONTINUE                                                        37   10
      IX = 32*(J-1) + 1                                               37   11
      IY = IX + 30                                                    37   12
    2 CONTINUE                                                        37   13
      IY1= 32*(K-1) + IOFST + 5                                       37   14
      IY2= IY1 + 16                                                   37   15
    3 CONTINUE                                                        37   16
      CALL GETBI (IC,IX,IZ1,C)                                        37   17
      CALL PTBI  (LA,IY1,IZ1,0)                                       37   18
      CALL GETBI (IC,IX+1,IZ2,0)                                      37   19
      CALL PTBI  (LA,IY2,IZ2,0)                                       37   20
      I = I - 2                                                       37   21
      IF(I.LE.0) GO TO 4                                              37   22
      K = K + 2                                                       37   23
      IX= IX + 2                                                      37   24
      IF(IX.LE.IY) GO TO 2                                            37   25
      J = J + 1                                                       37   26
      GO TO 1                                                         37   27
    4 RETURN                                                          37   28
      END                                                             37   29
```

2.6.36 SUBROUTINE SDL

```
ROUTINE:  SDL

      C   *   SDL                                                          36    1
          SUBROUTINE SDL(I,LA)                                             36    2
      C**** ROUTINE TO SET SURVEILLANCE DISPLAY LEGENDS      I = 5 TO 14   36    3
      C     PROCEDURE EMPLOYED BY ROUTINE J                                36    4
      C               LEGEND 5 = OCCUPANCY                                 36    5
      C               LEGEND 6 = VOLUME                                    36    6
      C               LEGEND 7 = SPEED                                     36    7
      C               LEGEND 8 = QUEUE                                     36    8
      C               LEGEND 9 = STOPS                                     36    9
      C               LEGEND 10= DELAY                                     36   10
      C               LEGEND 11= PASSENGER GAIN                            36   11
      C               LEGEND 12= BUSES HELPED                              36   12
      C               LEGEND 13= SURV EQUIP FAILED                         36   13
      C               LEGEND 14= BPS SURV EQUIP FAILED                     36   14
          DIMENSION LA(1)                                                  36   15
          I = I                                                            36   16
          DO 1 K=1,1                                                       36   17
          IA=64*(K-1)+21                                                   36   18
          CALL PTBI(LA,IA,0,0)                                             36   19
        1 CONTINUE                                                         36   20
          IF(I.EQ.0) GO TO 2                                               36   21
          IA=64*I+101                                                      36   22
          CALL PTBI(LA,IA,1,0)                                             36   23
        2 CONTINUE                                                         36   24
          RETURN                                                           36   25
          END                                                              36   26
```

2.6.37 SUBROUTINE TCSLP

```
BUTINE:  TCSLP                                                    1910: APR 13,'76

C   *   TCSLP                                                     38    1
      SUBROUTINE TCSLP(LP,MT,IF,NL,LD,LR,LA,ITR)                  38    2
C**** TCS LINK PARAMETER PROCESSING SUBROUTINE                    38    3
C     EMPLOYED BY ROUTINE J                                       38    4
      INTEGER DFAIL                                               38    5
      COMMON /BLK19/ CC2(129), DFAIL(69), D8F(17),                38    6
     * MI(31)      , RAM8C(258)  , RAMSP(258)  , RTC             38    7
     * TSTRT(516)                                                 38    8
      DIMENSION LD(1),LP(1),LR(1),LA(1)                           38    9
      I = IF + 1                                                  38   10
      DO 6  N = 1, NL                                             38   11
      GO TO (1,2,1,2),I                                           38   12
1     CALL HALF(LP,N,KZ)                                          38   13
      GO TO (4,4,3,3), I                                          38   14
2     CALL GETBY(LP,N,KZ)                                         38   15
      GO TO (4,4,3,3), I                                          38   16
3     IF(KZ.GT.MT) GO TO 6                                        38   17
      GO TO 5                                                     38   18
4     IF(KZ.LE.MT) GO TO 6                                        38   19
5     CONTINUE                                                    38   20
      CALL GETBY(DFAIL,N,IFAIL)                                   38   21
      IF(IFAIL.NE.0) GO TO 6                                      38   22
      CALL HALF(LD,N,IX)                                          38   23
      CALL PTBY(LR,IX,8)                                          38   24
6     CONTINUE                                                    38   25
      CALL BCDTH(ITR,LA)                                          38   26
      RETURN                                                      38   27
      END                                                         38   28
```

2.6.38 ROUTINE K

```
ROUTINE: RTNK

      C   *   RTNK                                                                  40    1
          SUBROUTINE RTNK                                                           40    2
      C                                                                             40    3
      C       SUBROUTINE RTNK BUILDS DISPLAYS FOR THE CRT AND TRIGGERS THE          40    4
      C       DEVICE WHEN IT IS COMPLETE.                                           40    5
      C                                                                             40    6
           INTEGER  AHCC ,  BYTCT,  BSI  ,  CICCT,  CICEF,  CICSF,  CICSC,         40    7
          * CICTF,  CMALF,  CNMAL,  CNSFC,  CNTLN,  CRTF1,  CRTF2,  CRTNM,         40    8
          * CRTR2,  CRTA1,  CRTA2,  CRTB1,  CRTB2,  CRTO1,  CRTD2,  CURBF,         40    9
          * CYNTB,  DMTAB,  DPCNBT,  CYCLC,  CMLNG,  CLENG,  DTLNG,  DWL  ,       40   10
          * DTTAB,  DMODE,  DIS  ,  OMALF,  OFAIL,  ENTFL,  ENBFF,  FLTAB,       40   11
          * GGGG ,  HBLD ,  PATNM,  SCDFC,  SECFC,  SDAR ,  VBL  ,  CNT10,       40   12
          * CHSET,  FTAB ,  FTBWD,  FLRFL,  FMTCH,  FMTNU,  FMTTY,  SSSS ,       40   13
          * VRINT,  WRF                                                          40   14
           INTEGER TINCH                                                        40   15
           INTEGER  HEAD ,  FAILH,  XNONE,  TYPE ,  ACKN ,  TRUN ,  HIST ,      40   16
          * BFFBN,  SYSH ,  HMODE,  TRUNU,  CNUMH,  SNUMH,  BFSTW,  SYNC ,      40   17
          * CICST,  CICH ,  HMING,  CSTAT,  BFST ,  CYLTH,  HINTV,  TRNPH,      40   18
          * H1LNK,  H2LNK,  H3LNK,  HLNKB,  HNCNT,  DIRCT,  PMESS,  TMB  ,      40   19
          * TIMB,HLNKDM                                                          40   20
           DIMENSION HLNKDM(3)                                                  40   21
           DIMENSION  CICM( 5),  CICST( 3),  CNUMH( 5),  CSTAT( 3),             40   22
          *          CYLTH( 3),  DIRCT( 9),  H1LNK( 5),  H2LNK(11),            40   23
          *          H3LNK(11),  HLNKB( 4),  HNCNT( 4),  HINTV( 7),            40   24
          *          HEAD(8,6),   HIST( 2),  HMODE( 6),  HMING( 4),            40   25
          *           ICR(  6),   ICC(  6),  IMCNT( 6),  BFFBN( 2),            40   26
          *          BFST(  4),  PMESS(49),  LPHAS( 7),  BFSTW( 4),            40   27
          *          SYSH( 31),  SNUMH( 3),   SYNC( 3),    TMB( 4),            40   28
          *          TIMB(  2),   TYPE( 3),   TRUN( 8),  ACKN( 2) ,            40   29
          *         TRNPH(  6),  XNONE( 3),  FAILH(18)                         40   30
           COMMON /HARGS/  FMTTY        ,  FMTNU        ,  FMTCH ,              40   31
          *  ITHNM(2)                                                          40   32
           COMMON /KKKKK/  CNT10        ,  NMC      , NMC4    ,  NMC16  ,      40   33
          * TRUN1(4)                                                          40   34
           COMMON /KCRT /  BYTCT(2)     ,  CRTR2(2) ,  CRTNM  ,  CRTA1  ,      40   35
          * CRTA2                                                            40   36
           COMMON /BLK6 /  FMC          ,  FMARK        ,  MAST(9)      ,      40   37
          * WMAST        ,  JMAST        ,  KMAST        ,  EMAST        ,      40   38
          * HMAST        ,  WMAST        ,  QMAST        ,  IMAST        ,      40   39
          * SPACE        ,  MPBKY        ,  QCNT                                40   40
           COMMON /BLK10/  CICSC(16)    ,  CICSY(8)     ,  CTLSC(16)    ,      40   41
          2 CTLSY(4),CNSEC(31),CNTZN(19),LNKCN(69),                             40   42
          * TIMCH(4)     ,  ZSI(32)                                             40   43
           COMMON /BLK11/  HSB15(32)    ,  IG15(64)     ,  KW           ,      40   44
          2 LNKOI(64),NDBL(69),NBNCS,NBCNT(4),                                  40   45
          * TBSU                                                                40   46
           COMMON /BLK12/ D(138), DAYWK, JJ,                                    40   47
          * LNKSI(3)     ,  PATNM(3)     ,  PRTFL        ,  SCNSI(2)     ,      40   48
          * SCCNT(29),SSFW                                                      40   49
           COMMON /BLK13/  DWL(259)     ,  OWLP(17)     ,  EBOC         ,      40   50
          1 FTAB, FTBWD, MBEIF(69)                                              40   51
           COMMON /BLK14/  CLENG        ,  OTLNG        ,  CMLNG        ,      40   52
          * OUMY1, OUMY2, CNTLN(372),ENTFL(5),                                  40   53
          * KCL(17), KCTF(17), KCSF(17),                                        40   54
          * VMVAR(31)    ,  SEMSK(8)     ,  VRINT(123)   ,  LNKPT(64)          40   55
           COMMON /BLK15/  CHSET        ,  HBUFL        ,  IGPI         ,      40   56
          * MNUMF        ,  NBMCH        ,  NCW22        ,  NCWD2        ,      40   57
          * NCWRD        ,  NMANP        ,  NMCTL        ,  NMLNK        ,      40   58
          * NMSCT        ,  NMVED        ,  NPATB        ,  NPB4         ,      40   59
          * NRESP        ,  NSTM1        ,  TBSIZ        ,  TBYTE        ,      40   60
          * CS           ,  OS           ,  FS           ,  NS           ,      40   61
          * QS           ,  RS           ,  SS           ,  SCS                 40   62
           COMMON /BLK17/  ADVNM(8)     ,  CICBP(8)     ,  CPABG(8)     ,      40   63
          * IADPI(8)     , CNTWR(124) , CNTNM        , IL2           ,         40   64
          * INTNM(31)    ,  ITNML(31)    ,  INTBU(32)    ,  KL2          ,      40   65
          * STBTM(32), TIMEB(32), QVBK(69)                                      40   66
           COMMON /BLK18/  CICTF(8)     ,  CTBOF(8)     ,  STBYU(8)     ,      40   67
          * CYNTB(62)    ,  CURBF(31)    ,  CYCLC(31)    ,  ENINT(496)   ,      40   68
          * ENBFF(31)    ,  GGGT(124)    ,  GAWTP(31)    ,  GBWTP(31)    ,      40   69
          * GLABC(124)   ,  GGGG(124)    ,  GUABC(124)   ,  INTBU(496)   ,      40   70
          * SSSS(124)    ,  TKM(31)      ,  WRKBF(31)                           40   71
           COMMON /BLK19/ CC2(129), QFAIL(69), QBF(17),                         40   72
          * MI(31)       ,  RAWBC(258)   ,  RAWSP(258)   ,  RTC          ,      40   73
          * TSTRT(516)                                                         40   74
           COMMON /BLK22/  CRTB1(512)   ,  CRTB2(512)   ,  CRTO1        ,      40   75
          * CRTD2        ,  CRTF1        ,  CRTF2        ,  FLRFL              40   76
           COMMON /BLK25/ AHCC(138), CMMAL(17), CMTAB(258),                     40   77
          * DTTAB(258)   ,  DIS(17)      ,  OMALF(17)    ,  OMBOE        ,      40   78
          * FLTAB(800)   ,  HRF          ,  MBOES        ,  NAI          ,      40   79
          * NBFAL, SBAM(69), SECFC(4), SCDFC(4), VBL(138)                        40   80
           COMMON/BLK28/AGR(14),PIA(6),RCM(2),HSB(14),APBM1(14),CPNHU,CPNBT,    40   81
          * MARR(840)    ,  HMAP(2)      ,  JCNT         ,  KCNT         ,      40   82
          * MNC15        ,  WMSBF        ,  CLBCK        ,  WMINF        ,      40   83
          * MINCT        ,  TAB(3)       ,  NBNB(8)                             40   84
           COMMON /MISCL/ CICINM(8),LSQ(3),CYCREF(5)                            40   85
           INTEGER CICINM,CYCREF                                                40   86
      C                                                                         40   87
           DATA NRTIM/ 0/                                                       40   88
           DATA IRPAR/41/                                                       40   89
           DATA LEAD /126/                                                      40   90
           DATA IMBME/18/                                                       40   91
           DATA IDEL /127/                                                      40   92
           DATA ICR(1),ICC(1), ICR(2),ICC(2), ICR(3),ICC(3), ICR(4),ICC(4),     40   93
          *     ICR(5),ICC(5), ICR(6),ICC(6)/ 2,24, 2,26, 2,24, 2,25, 2,23,    40   94
          *     5,24/                                                           40   95
           DATA IMCNT(1),IMCNT(2),IMCNT(3),IMCNT(4),IMCNT(5),IMCNT(6)/          40   96
          *     24, 24, 28, 28, 32, 32/                                         40   97
           DATA LPHAS(1),LPHAS(2),LPHAS(3),LPHAS(4),LPHAS(5),LPHAS(6),          40   98
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```
*     LPHAS(7)/  65, 65, 66, 66, 67,  0, 68/                          40   99
      DATA TIMB/'  TI','ME! '/                                        40  100
      DATA HEAD(1,1),HEAD(2,1),HEAD(3,1),HEAD(4,1),HEAD(5,1),HEAD(6,1)/ 40  101
     * '$$$$!' , ' FAI' , 'LURE' , ' STA' , 'TUS ' , '$$$$'/           40  102
      DATA HEAD(1,2),HEAD(2,2),HEAD(3,2),HEAD(4,2),HEAD(5,2),HEAD(6,2)/ 40  103
     * '$$$$!' , ' SYS' , 'TEM ' , 'STAT' , 'US $' , '$$$ '/          40  104
      DATA HEAD(1,3),HEAD(2,3),HEAD(3,3),HEAD(4,3),HEAD(5,3),HEAD(6,3), 40  105
     *      HEAD(7,3)/        '$$$$!' , ' CON' , 'TROL' , 'LER ' , ' ' , 40  106
     *   'STAT' , 'US $' , '$$$ ' /                                    40  107
      DATA HEAD(1,4),HEAD(2,4),HEAD(3,4),HEAD(4,4),HEAD(5,4),HEAD(6,4), 40  108
     *      HEAD(7,4)/        '$$$$!' , ' OFT' , 'ECT$' , 'R ST' , '   40  109
     *   'ATUS' , ' $$$' , '$   '/                                     40  110
      DATA HEAD(1,5),HEAD(2,5),HEAD(3,5),HEAD(4,5),HEAD(5,5),HEAD(6,5), 40  111
     *      HEAD(7,5),HEAD(8,5)/        '$$$$' , ' INT' , 'ERSE' , '   40  112
     *   'CTI$' , 'N ST' , 'ATUS' , ' $ES' , '$   ' /                  40  113
      DATA HEAD(1,6),HEAD(2,6),HEAD(3,6),HEAD(4,6),HEAD(5,6),HEAD(6,6), 40  114
     *      HEAD(7,6),HEAD(8,6)/        '$$$$' , '$ A ' , 'T T ' , '   40  115
     *   'E N ' , 'T I ' , '$ N ' , '$$ES' , '$;;;' /                  40  116
      DATA FAILH / 'TYPE' , ' NB' , '.  T' , 'IME ' , ' MSN' ,        40  117
     *   'T=  ' , 'DAY ' , ' ACK' , '.   ' , ' TYP' , 'E  N' ,        40  118
     *   '$.  ' , 'TIME' , '  MB' , 'NTH ' , ' DAY' , '  AC' ,        40  119
     *   'K.  ' /                                                      40  120
      DATA XNONE / 'ALL ' , 'NORM' , 'AL  ' /                         40  121



      DATA TYPE  / 'CONT' , 'DET ' , 'COMM' /                         40  122
      DATA ACKN  / 'N   ' , 'Y   ' /                                  40  123
      DATA TRUN  / 'TRUN' , 'CATE' , 'D LI' , 'ST =' , ' TOT' ,       40  124
     *   'AL N' , 'UMBE' , 'R = ' /                                    40  125
      DATA HIST  / 'HIST' , 'ORY ' /                                  40  126
      DATA OFFON / 'OFF ' , 'ON  ' /                                  40  127
      DATA SYST  / 'DESI' , 'RED ' , ' ACT' , 'UAL ' , ' PAT' ,       40  128
     *   'TERN' , '    ' , 'CIC ' , '    ' , '  FA' , 'ILUR' ,       40  129
     *   'ES  ' , '    ' , '    ' , '    ' , ' SEC' , 'T.  ' ,       40  130
     *   'TIME' , '  M' , 'ODE ' , '    ' , 'MODE' , '    ' ,       40  131
     *   ' NB=' , '    ' , ' IN ' , '$P. ' , '  DE' , 'T.  ' ,       40  132
     *   ' CON' , '.   ' /                                            40  133
      DATA MODE / 'STBY' , 'MAN ' , 'T$O ' , 'TRSP' , '  3L' ,       40  134
     *   'FAIL' /                                                      40  135
      DATA TRUN1 / 'TRUN' , 'CATE' , 'D LI' , 'ST  ' /                40  136
      DATA CNUM / 'CONT' , 'ROLL' , 'ER N' , 'UMBE' , 'R   ' / 40 137
      DATA SNUM / 'SECT' , '1$N ' , 'NB. ' /                          40  138
      DATA $STW / '$FFS' , 'ET (' , 'ACTU' , 'AL) ' /                 40  139
      DATA SYNC / 'MAST' , 'ER S' , 'YNC.' /                          40  140
      DATA CICST / 'CIC ' , 'STAT' , 'US  ' /                         40  141
      DATA CICH  / 'THLD' , ' ACT' , ' INH' , '  NI' , ' REL' /      40  142
      DATA HRING / 'RING' , ' A P' , 'HASE' , ' GR.' /                40  143
      DATA CSTAT / 'CONT' , ' STA' , 'TUS ' /                         40  144
      DATA $FST  / '$FFS' , 'ET (' , 'ENTR' , 'Y)  ' /                40  145
      DATA CYLTH / 'CYCL' , 'E LE' , 'NGTH' /                         40  146
      DATA HINTV / 'INTE' , 'RVAL' , ' DUR' , 'ATI$' , 'NS (' ,       40  147
     *   'SEC$' , 'NDS)' /                                            40  148
      DATA TRNPH / 'CONT' , 'ROLL' , 'ER I' , 'N TR' , 'ANSI' ,       40  149
     *   'TION' /                                                      40  150
      DATA HLINK / '$$$$' , ' LIN' , 'K DA' , 'TA $' , '$$$ ' /       40  151
      DATA HLNK / '  LI' , 'NK ' , ' LNK' , '    ' , 'LNK ' ,       40  152
     *   '  BC' , 'OUP ' , '  VB' , 'LUME' , '   S' , 'PEED' /       40  153
      DATA HLNK / '  N ' , '0   ' , 'PHAS' , 'E   ' , 'DIR ' ,       40  154
     *   '  PA' , 'CT  ' , '  VA' , 'PH  ' , '    ' , 'MPH ' /       40  155
      DATA HLNK0 / 'LINK' , ' INB' , 'PERA' , 'TIVE' /                40  156
      DATA HCONT / 'NBT ' , 'INST' , 'RUME' , 'NTED' /                40  157
      DATA HLNKDM /'OUMM','Y LI','NK  '/                              40  158
      DATA DIRCT / 'N   ' , 'S   ' , 'E   ' , 'W   ' , 'NE  ' ,       40  159
     *   'NW  ' , 'SE  ' , 'SW  ' , 'E0  ' /                           40  160
      DATA PRESS / 'CPU ' , 'FAIL' , 'URE ' , 'DETE' , 'CTED' ,       40  161
     *   ' AT ' , '    ' , '    ' , ' ATT' , 'EMPT' , 'ING ' ,       40  162
     *   'URAC' , 'EFUL' , ' SHU' , 'TD0W' , 'N   ' , ' MSN' ,       40  163
     *   'IT$R' , ' CON' , 'TROL' , 'LER ' , 'STAT' , 'US T' ,       40  164
     *   '0   ' , 'DETE' , 'RMIN' , 'E ER' , 'FECT' , 'IVEN' ,       40  165
     *   'ESS ' , '0F S' , 'HUTO' , '0WN ' , '   I' , 'F SY' ,       40  166
     *   'STEM' , ' DBE' , 'S NB' , 'T RE' , 'SPON' , 'D US' ,       40  167
     *   'E   ' , 'M A ' , 'N U ' , 'A L ' , ' R E' , ' L E' ,       40  168
     *   ' A S' , ' E ' /                                            40  169
C                                                                     40  170
      EQUIVALENCE (CMALF(1),CICTF(2))                                 40  171
      EQUIVALENCE (CICSF(1),CTBDF(2))                                 40  172
      EQUIVALENCE (CICEF(1),CICRP(2))                                 40  173
      EQUIVALENCE(HBLO(1),HSB(2))                                     40  174
      EQUIVALENCE (LNKPH(1),LNKPT(1))                                 40  175
      IFL = 3                                                         40  176
      IT$T = ENTFL(1)                                                 40  177
C                                                                     40  178
C        CHECK ENTFL FLAGS AND CALL FAIL TABLE UPDATE IF ON           40  179
C                                                                     40  180
   10 CONTINUE                                                        40  181
      IT$T = IT$T + ENTFL(IFL)                                        40  182
      IF(IT$T.LT.0) GO TO 20                                          40  183
C                                                                     40  184
C        ENTRY FLAG IS ON  -  CALL FAIL TABLE UPDATE ROUTINE          40  185
C                                                                     40  186
      CALL KRTJ                                                       40  187
      RETURN                                                          40  188
   20 CONTINUE                                                        40  189
      IFL = IFL+1                                                     40  190
      IF(IFL.GT.1) GO TO 10                                           40  191
C                                                                     40  192
C        SET UPDATE RATE TO 25 SECONDS                                40  193
C                                                                     40  194
      KCNT = 25                                                       40  195
C                                                                     40  196
C        SET UP INDEX FOR CRT 1                                       40  197
C                                                                     40  198
      BSI = 1                                                         40  199
      ICRT = 0                                                        40  200
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      IF(CRTF1.NE.0) GO TO 30                                          40  201
C                                                                      40  202
C        SET UP INDEX FOR CRT 2                                        40  203
C                                                                      40  204
      ICRT = 1                                                         40  205
      BSI = 2049                                                       40  206
   30 CONTINUE                                                         40  207
      IF(ICRT.EQ.1) GO TO 40                                           40  208
C                                                                      40  209
C        CRT 1 OPERATION DESIRED                                       40  210
C                                                                      40  211
      CRTN1 = 1                                                        40  212
      CRTF1 = 0                                                        40  213
      GO TO 50                                                         40  214
C                                                                      40  215
C        CRT 2 OPERATION DESIRED                                       40  216
C                                                                      40  217
   40 CONTINUE                                                         40  218
      CRTN1 = 0                                                        40  219
      CRTF2 = 0                                                        40  220
   50 CONTINUE                                                         40  221
C                                                                      40  222
C        CRT2(1) IS CRT 2  -  CRT2(2) IS CRT 1                         40  223
C                                                                      40  224
      IF(CRT2(2-ICRT).NE.0) GO TO 920                                  40  225
      IF(ICRT.EQ.1) GO TO 60                                           40  226
C                                                                      40  227
C        CRT 1 DESIRED                                                 40  228
C                                                                      40  229
      CRTA1 = 1                                                        40  230
      GO TO 70                                                         40  231
C                                                                      40  232
C        CRT 2 DESIRED                                                 40  233
C                                                                      40  234
   60 CONTINUE                                                         40  235
      CRTA2 = 1                                                        40  236
   70 CONTINUE                                                         40  237
      CALL DISIN(BSI)                                                  40  238
C                                                                      40  239
C        GET CURRENT TIME OF DAY                                       40  240
C                                                                      40  241
      CALL TODAY(TIM)                                                  40  242
      IBYTE = XBUFC/2                                                  40  243
C                                                                      40  244
C        FILL FIRST WORD OF CRT BUFFER WITH LEAD-IN, HOME CURSOR, DEL, 40  245
C        DEL                                                           40  246
C                                                                      40  247
      CALL PTBY(CRTB1,BSI,LEAD)                                        40  248
      CALL PTBY(CRTB1,BSI+1,IHOME)                                     40  249
      CALL PTBY(CRTB1,BSI+2,IDEL)                                      40  250
      CALL PTBY(CRTB1,BSI+3,IDEL)                                      40  251
      BSI = BSI+4                                                      40  252
C                                                                      40  253
C        PUT CURRENT TIME ON OUTPUT PAGE                               40  254
C                                                                      40  255
      CALL CNVT(TIM8,R,BSI)                                            40  256
      CALL CNVT(TM8,5,BSI)                                             40  257
C                                                                      40  258
C        LOCATE DESIRED PAGE HEADING AND PUT IN CRT BUFFER             40  259
C                                                                      40  260
      IF(ICRT.EQ.1) GO TO 80                                           40  261
C                                                                      40  262
C        CRT 1 DESIRED                                                 40  263
C                                                                      40  264
      ICODE = CRTD1                                                    40  265
      GO TO 90                                                         40  266
C                                                                      40  267
C        CRT 2 DESIRED                                                 40  268
C                                                                      40  269
   80 CONTINUE                                                         40  270
      ICODE = CRTD2                                                    40  271
   90 CONTINUE                                                         40  272
      CALL SETCR(BSI,ICR(ICODE),ICC(ICODE))                            40  273
      CALL CNVT(HEAD(1,ICODE),IHLNT(ICODE),BSI)                        40  274
C                                                                      40  275
C        GO TO DESIRED PAGE FORMAT                                     40  276
C          FAILURE STATUS       = 100                                 40  277
C          SYSTEM STATUS        = 300                                 40  278
C          CONTROLLER STATUS    = 400                                 40  279
C          DETECTOR STATUS      = 500                                 40  280
C          INTERSECTION STATUS  = 600                                 40  281
C          PANIC MESSAGE        = 800                                 40  282
C                                                                      40  283
      GO TO (100,300,400,500,600,800),ICODE                            40  284
C                                                                      40  285
C        FAILURE STATUS TABLE                                          40  286
C                                                                      40  287
  100 CONTINUE                                                         40  288
      IR9A = 4                                                         40  289
      IC9L = 2                                                         40  290
      CALL SETCR(BSI,IR9A,IC9L)                                        40  291
      NCHAR = 72                                                       40  292
      CALL CNVT(FAILH,NCHAR,BSI)                                       40  293
      IF(NOFAL.GT.0) GO TO 120                                         40  294
  110 CONTINUE                                                         40  295
      IR9A = 17                                                        40  296
      IC9L = 3                                                         40  297
      CALL SETCR(BSI,IR9A,IC9L)                                        40  298
      NCHAR = 12                                                       40  299
      CALL CNVT(ANONE,NCHAR,BSI)                                       40  300
      GO TO 900                                                        40  301
  120 CONTINUE                                                         40  302
      LSIDE = 0                                                        40  303
      LCNT = 0                                                         40  304
      IF(NOFAL.GT.36) GO TO 130                                        40  305
      NFAL2 = NOFAL/2                                                  40  306
      GO TO 140                                                        40  307
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```
 130 CONTINUE                                                           40  308
     NFAL2 = 19                                                         40  309
 140 CONTINUE                                                           40  310
     NT1 = NFAL2                                                        40  311
     NFAL2 = NFAL2 + 19                                                 40  312
     NT2 = NFAL2                                                        40  313
     NFAL2 = NT1                                                        40  314
     IF(NFAL.GT.MXLOOP) NFAL=MXLOOP                                     40  315
     IFTB = (NFAL-1)*16+1                                               40  316
 150 CONTINUE                                                           40  317
     IRW = 20+NFAL2+NT2                                                 40  318
     ICOL = 2+LSIDE                                                     40  319
     CALL SETCR(BSI,IRW,ICOL)                                           40  320
     CALL GETBY(FLTAB,IFTB+1,ITYPE)                                     40  321
     ITYPE = ITYPE+2                                                    40  322
     NCHAR = 4                                                          40  323
 160 CONTINUE                                                           40  324
     CALL CNVT(TYPE(ITYPE),NCHAR,BSI)                                   40  325
     BSI = BSI + 1                                                      40  326
     IFTM = IFTB/2 + 1                                                  40  327
     CALL HALF(FLTAB,IFTM+1,IEQN)                                       40  328
     CALL DISNM(BSI,IEQN)                                               40  329
C                                                                       40  330
C       PUT HOURS AND MINUTES IN CRT BUFFER                             40  331
C                                                                       40  332
     BSI = BSI + 1                                                      40  333
     NCHAR = 5                                                          40  334
     INDEX = (IFTM+4)/IBYTE+1                                           40  335
     CALL CNVT(FLTAB(INDEX),NCHAR,BSI)                                  40  336
     BSI = BSI + 3                                                      40  337
     IF(IBYTE.GT.2) GO TO 170                                           40  338
C                                                                       40  339
C       PUT MONTH AND DAY IN CRT BUFFER FOR 16 BIT WORD MACHINE         40  340
C                                                                       40  341
     NCHAR = 3                                                          40  342
     INDEX = INDEX + 3                                                  40  343
     CALL CNVT(FLTAB(INDEX),NCHAR,BSI)                                  40  344
     BSI = BSI + 3                                                      40  345
     NCHAR = 2                                                          40  346
     INDEX = INDEX + 2                                                  40  347
     CALL CNVT(FLTAB(INDEX),NCHAR,BSI)                                  40  348
     GO TO 180                                                          40  349
 170 CONTINUE                                                           40  350
C                                                                       40  351
C       PUT MONTH AND DAY IN CRT BUFFER FOR A 32 BIT WORD MACHINE       40  352
C                                                                       40  353
     INDEX = IFTM + 5                                                   40  354
C                                                                       40  355
C       PICK UP 1ST TWO CHARACTERS OF MONTH AND SHIFT LEFT 2 BYTES      40  356
C                                                                       40  357
     IFTBW = IFTB/4 + 3                                                 40  358
     NTEMP = FLTAB(IFTBW)                                               40  359
     NTEMP = NTEMP * 256 * 256                                          40  360
     NCHAR = 2                                                          40  361
     CALL CNVT(NTEMP,NCHAR,BSI)                                         40  362
     NCHAR = 1                                                          40  363
     CALL CNVT(FLTAB(IFTBW+1),NCHAR,BSI)                                40  364
     BSI = BSI + 3                                                      40  365
C                                                                       40  366
C       PICK UP DAY AND SHIFT LEFT 2 CHARACTERS                         40  367
C                                                                       40  368
     NTEMP = FLTAB(IFTBW+1)                                             40  369
     NTEMP = NTEMP * 256 * 256                                          40  370
     NCHAR = 2                                                          40  371
     CALL CNVT(NTEMP,NCHAR,BSI)                                         40  372
 180 CONTINUE                                                           40  373
C                                                                       40  374
C       PUT ACKNOWLEDGE IN CRT BUFFER                                   40  375
C                                                                       40  376
     BSI = BSI + 4                                                      40  377
     NCHAR = 1                                                          40  378
     CALL GETBY(FLTAB,IFTB,IACK)                                        40  379
     IACK = IACK + 1                                                    40  380
     CALL CNVT(ACKN(IACK),NCHAR,BSI)                                    40  381
     IFTB = IFTB + 16                                                   40  382
     LCNT = LCNT + 1                                                    40  383
     NFAL2 = NFAL2 + 1                                                  40  384
     IF(NFAL2.GT.20) GO TO 190                                          40  385
C                                                                       40  386
C       COMPLETED LISTING FAILURES ON LEFT SIDE, CHECK IF PAGE IS FULL  40  387
C                                                                       40  388
     IF(LCNT.NE.38) GO TO 200                                           40  389
     IF(IFTB.LE.0) GO TO 900                                            40  390
     LSIDE = 37                                                         40  391
     IF(LCNT.GT.NT1) GO TO 190                                          40  392
     NFAL2 = NT1                                                        40  393
     GO TO 150                                                          40  394
 190 CONTINUE                                                           40  395
     NFAL2 = 1                                                          40  396
     NT2 = NT2 + 1                                                      40  397
     GO TO 150                                                          40  398
 200 CONTINUE                                                           40  399
C                                                                       40  400
C       TRUNCATED LIST                                                  40  401
C                                                                       40  402
     IRW = 27                                                           40  403
     ICOL = 15                                                          40  404
     CALL SETCR(BSI,IRW,ICOL)                                           40  405
     NCHAR = 32                                                         40  406
     CALL CNVT(TRUN,NCHAR,BSI)                                          40  407
     CALL DISNM(MSI,NOFAL)                                              40  408
     GO TO 900                                                          40  409
C                                                                       40  410
C       SYSTEMS STATUS                                                  40  411
C                                                                       40  412
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  300 CONTINUE                                                          40  413
      IR9W = 4                                                          40  414
      IC9L = 3                                                          40  415
      CALL SETCR(BSI,IR9W,IC9L)                                         40  416
      NCHAR = 8                                                         40  417
      CALL CNVT(HIST,NCHAR,BSI)                                         40  418
      NCHAR = 3                                                         40  419
      CALL CNVT(BFF0N(HRF+1),NCHAR,BSI)                                 40  420
      IR9W = 6                                                          40  421
      IC9L = 16                                                         40  422
      CALL SETCR(BSI,IR9W,IC9L)                                         40  423
      NCHAR = 122                                                       40  424
      CALL CNVT(SYSH,NCHAR,BSI)                                         40  425
      IR4 = 0                                                           40  426
  310 CONTINUE                                                          40  427
      DO 320 NSCTN=1,NMSCT                                              40  428
      IR3 = 5                                                           40  429
      CICCT = 0                                                         40  430
      IR9W = 8 + NSCTN                                                  40  431
      IC9L = 2                                                          40  432
      CALL SETCR(BSI,IR9W,IC9L)                                         40  433
      CALL DISNM(BSI,NSCTN)                                             40  434
      BSI = BSI + 4                                                     40  435
      NCHAR = 4                                                         40  436
      CALL CNVT(TIMCH(NSCTN),NCHAR,BSI)                                 40  437
      BSI = BSI + 3                                                     40  438
      CALL GETBY(DM80E,NSCTN,M80E)                                      40  439
      M80E = M80E + 1                                                   40  440
      CALL CNVT(HM80E(M80E),NCHAR,BSI)                                  40  441
      BSI = BSI + 5                                                     40  442
      CALL GETBY(M80ES,NSCTN,M80E)                                      40  443
      M80E = M80E + 1                                                   40  444
      CALL CNVT(HM80E(M80E),NCHAR,BSI)                                  40  445
      BSI = BSI + 3                                                     40  446
      CALL GETBY(PATNM,NSCTN,NPAT)                                      40  447
      NPAT = NPAT + 1                                                   40  448
      CALL DISNM(BSI,NPAT)                                              40  449
      BSI = BSI + 6                                                     40  450
C                                                                       40  451
C        COUNT THE NUMBER OF CIC'S FOR THIS SECTION                     40  452
C                                                                       40  453
      CALL CIC(IR3,IR4,CICCT)                                           40  454
      CALL DISNM(BSI,CICCT)                                             40  455
      BSI = BSI + 4                                                     40  456
      CALL DISNM(BSI,SCOFC(NSCTN))                                      40  457
      BSI = BSI + 3                                                     40  458
      CALL DISNM(BSI,SECFC(NSCTN))                                      40  459
  320 CONTINUE                                                          40  460
      GO TO 900                                                         40  461
C                                                                       40  462
C        CONTROLLER STATUS                                              40  463
C                                                                       40  464
  400 CONTINUE                                                          40  465
      LINE = 0                                                          40  466
      CNT10 = 10                                                        40  467
      IR8W = 4                                                          40  468
      IC8L = 3                                                          40  469
      CALL SETCR(BSI,IR8W,IC8L)                                         40  470
      INDEX = 1                                                         40  471
      NCNTR = 1                                                         40  472
      IBUT = 0                                                          40  473
      IF(IC8DE.EQ.4) GO TO 480                                          40  474
  410 CONTINUE                                                          40  475
C                                                                       40  476
C        CONTROLLER STATUS OUTPUT PAGE                                  40  477
C *                                                                     40  478
      CALL GETBI(CMALF,INDEX,ICF,1)                                     40  479
      IF(ICF.NE.0) GO TO 440                                            40  480
      CALL GETBI(M8LD,INDEX,ISTBY,1)                                    40  481
      IF(ISTBY.EQ.0) GO TO 450                                          40  482
      CALL GETBI(CICSF,INDEX,ICIC,1)                                    40  483
      IF(ICIC.EQ.0) GO TO 430                                           40  484
      CALL GETBI(CICEF,INDEX,ICEF,1)                                    40  485
      IF(ICEF.EQ.0) GO TO 470                                           40  486
      ICHAR = 3                                                         40  487
  420 CONTINUE                                                          40  488
      CALL DISNM(BSI,NCNTR)                                             40  489
      CALL SC80E(BSI,ICHAR,IBUT,LINE,IRTRN)                             40  490
      IF(IRTRN.EQ.1) GO TO 900                                          40  491
  430 CONTINUE                                                          40  492
      NCNTR = NCNTR + 1                                                 40  493
      IF(NCNTR.GT.NMCTL) GO TO 540                                      40  494
      INDEX = INDEX + 1                                                 40  495
      GO TO 410                                                         40  496
  440 CONTINUE                                                          40  497
      ICHAR = 2                                                         40  498
      GO TO 420                                                         40  499
  450 CONTINUE                                                          40  500
      DO 460 N=1,N9NCS                                                  40  501
      CALL GETBY(N9CNT,N,N8C8)                                          40  502
      IF(NCNTR.EQ.N8C8) GO TO 430                                       40  503
  460 CONTINUE                                                          40  504
      ICHAR = 1                                                         40  505
      GO TO 420                                                         40  506
  470 CONTINUE                                                          40  507
      ICHAR = 4                                                         40  508
      GO TO 420                                                         40  509
C                                                                       40  510
C        DETECTOR STATUS OUTPUT PAGE                                    40  511
C                                                                       40  512
  480 CONTINUE                                                          40  513
      CALL GETBI(IDIS,INDEX,IDIS,0)                                     40  514
      IF(IDIS.NE.0) GO TO 500                                           40  515
      CALL GETBI(CMALF,INDEX,IMLF,0)                                    40  516
      IF(IMLF.NE.0) GO TO 520                                           40  517
      CALL GETBI(CMMAL,INDEX,IC8MF,0)                                   40  518
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      IF(ICONF.NE.0) GO TO 530                                          40  519
  490 CONTINUE                                                          40  520
      NCNTR = NCNTR + 1                                                 40  521
      IF(NCNTR.GT.NMVFO) GO TO 540                                      40  522
      INDEX = INDEX + 1                                                 40  523
      GO TO 480                                                         40  524
  500 CONTINUE                                                          40  525
      CALL DISNM(BSI,NCNTR)                                             40  526
      ICHAR = 1                                                         40  527
  510 CONTINUE                                                          40  528
      CALL SCODE(BSI,ICHAR,IBUT,LINE,IRTRN)                             40  529
      IF(IRTRN.EQ.1) GO TO 900                                          40  530
      GO TO 490                                                         40  531
  520 CONTINUE                                                          40  532
      CALL DISNM(BSI,NCNTR)                                             40  533
      ICHAR = 5                                                         40  534
      GO TO 510                                                         40  535
  530 CONTINUE                                                          40  536
      CALL DISNM(BSI,NCNTR)                                             40  537
      ICHAR = 3                                                         40  538
      GO TO 510                                                         40  539
  540 CONTINUE                                                          40  540
      IF(IBUT.NE.0) GO TO 900                                           40  541
      GO TO 110                                                         40  542
C                                                                       40  543
C        INTERSECTION STATUS                                            40  544
C                                                                       40  545
  600 CONTINUE                                                          40  546
      IRWA = 3                                                          40  547
      ICHL = 27                                                         40  548
      CALL SETCR(BSI,IRWA,ICHL)                                         40  549
      NCHAR = 17                                                        40  550
      CALL CNVT(CNUMM,NCHAR,BSI)                                        40  551
C                                                                       40  552
C                                                                       40  553
      NMC = ITRNR(ICNT+1)                                               40  554
      CALL DISNM(BSI,NMC)                                               40  555
      NMC1 = NMC + 1                                                    40  556
      NMC4 = NMC1*4 + 1                                                 40  557
      NMC16 = NMC1*16 + 1                                               40  558
      CALL GETBY(INTSC,NMC16,IDUM)                                      40  559
      IF(IDUM.EQ.0) GO TO 620                                           40  560
  610 CONTINUE                                                          40  561
      IRWA = 5                                                          40  562
      ICHL = 1                                                          40  563
      CALL SETCR(BSI,IRWA,ICHL)                                         40  564
      NCHAR = 12                                                        40  565
      CALL CNVT(SNUMM,NCHAR,BSI)                                        40  566
C                                                                       40  567
C        NMS = SECTION NUMBER                                           40  568
C                                                                       40  569
      CALL GETBY(CNSEC,NMC,NMS)                                         40  570
      NMS1 = NMS + 1                                                    40  571
      CALL DISNM(BSI,NMS)                                               40  572
      BSI = BSI + 5                                                     40  573
      NCHAR = 16                                                        40  574
      CALL CNVT(BFSTA,NCHAR,BSI)                                        40  575
      CALL GETBY(CURBF,NMC,IC9FS)                                       40  576
      CALL DCMAL(BSI,IC9FS)                                             40  577
      BSI = BSI + 6                                                     40  578
      NCHAR = 12                                                        40  579
C                                                                       40  580
C        PUTS OUT MASTER SYNC HEADER BUT DOES NOT PUT OUT Y OR N TILL   40  581
C        LATER                                                          40  582
C                                                                       40  583
      CALL CNVT(SYNC,NCHAR,BSI)                                         40  584
      BSI = BSI + 4                                                     40  585
      IBSI = BSI                                                        40  586
      BSI = BSI + 1                                                     40  587
      CALL CHLF(BSI,1)                                                  40  588
      NCHAR = 12                                                        40  589
      CALL CNVT(CICST,NCHAR,BSI)                                        40  590
      IC*0 = NMC1/32                                                    40  591
      ICBIT = NMC1 - (IC*0*32)                                          40  592
      INDX = NMS1*NCARD + IC*0                                          40  593
      IX = INDX*32 + ICBIT + 1                                          40  594
      IB = NMC                                                          40  595
      CALL GETBI(CICSC,IX,ICIC,0)                                       40  596
      IF(ICIC.EQ.0) GO TO 760                                           40  597
      CALL GETBI(CICSF,IB,ICIC,1)                                       40  598
      IF(ICIC.EQ.0) GO TO 770                                           40  599
      CALL GETBI(CICTF,IB,ICTH,1)                                       40  600
      IF(ICTH.EQ.0) GO TO 620                                           40  601
      IH = 1                                                            40  602
      GO TO 640                                                         40  603
  620 CONTINUE                                                          40  604
      CALL GETBI(CICEF,IB,ICIC,1)                                       40  605
      IF(ICIC.EQ.0) GO TO 630                                           40  606
      CALL GETBI(CICINH,IB,ICIC,1)                                      40  607
      IF(ICIC.NE.0) GO TO 630                                           40  608
      IH =                                                              40  609
      GO TO 640                                                         40  610
  630 CONTINUE                                                          40  611
      IH = 3                                                            40  612
  640 CONTINUE                                                          40  613
      NCHAR = 4                                                         40  614
      CALL CNVT(CICH(IH),NCHAR,BSI)                                     40  615
      BSI = BSI + 5                                                     40  616
      NCHAR = 16                                                        40  617
```

```
      CALL CNVT(HMING,NCHAR,BSI)                                        40  618
      CALL GETBY(GGGG,NMC4,IGGG)                                        40  619
      CALL DCMAL(BSI,IGGG)                                              40  620
      IPMAS = 1                                                         40  621
      CALL GREEN(BSI,NMC4,IPMAS)                                        40  622
C                                                                       40  623
C        PUT OUT CONTROLLER STATUS                                      40  624
C                                                                       40  625
      NCHAR = 12                                                        40  626
      CALL CNVT(CSTAT,NCHAR,BSI)                                        40  627
      CALL GETBI(HOLD,IH,ISTBY,1)                                       40  628
      IF(ISTBY.EQ.0) GO TO 750                                          40  629
      IH = 5                                                            40  630
  650 CONTINUE                                                          40  631
      NCHAR = 4                                                         40  632
      CALL CNVT(HMBOE(IH),NCHAR,BSI)                                    40  633
      BSI = BSI + 5                                                     40  634
      NCHAR = 16                                                        40  635
      CALL CNVT(OFST,NCHAR,BSI)                                         40  636
      CALL GETBY(ENOFF,NMC,IEOFF)                                       40  637
      CALL DCMAL(BSI,IEOFF)                                             40  638
      IPMAS = 2                                                         40  639
      INDEX = NMC4 + 1                                                  40  640
      CALL GREEN(BSI,INDEX,IPMAS)                                       40  641
C                                                                       40  642
C        LEAVE FIRST ENTRY ON THIS LINE BLANK                           40  643
C                                                                       40  644
      BSI = BSI + 21                                                    40  645
      NCHAR = 12                                                        40  646
      CALL CNVT(CYLTM,NCHAR,BSI)                                        40  647
      BSI = BSI + 4                                                     40  648
      CALL GETBY(CYCLC,NMC,ICYCL)                                       40  649
      IH = 2                                                            40  650
      IF(KCTF(ICYCL+1).EQ.0) IH = 1                                     40  651
C                                                                       40  652
C        PUT OUT Y OR N FOR MASTER SYNC ENTRY                           40  653
C                                                                       40  654
      NCHAR = 1                                                         40  655
      CALL CNVT(ACKN(IH),NCHAR,IBSI)                                    40  656
      CALL DCMAL(BSI,KCL(ICYCL+1))                                      40  657
      IPMAS = 3                                                         40  658
      INDEX = NMC4 + 2                                                  40  659
      CALL GREEN(BSI,INDEX,IPMAS)                                       40  660
      CALL CRLF(BSI,1)                                                  40  661
      NCHAR = 28                                                        40  662
      CALL CNVT(HINTV,NCHAR,BSI)                                        40  663
      CALL CRLF(BSI,1)                                                  40  664
      INDEX = NMC16                                                     40  665
      DO 660 I=1,16                                                     40  666
      CALL DISNM(BSI,I)                                                 40  667
      CALL PTBY(CNTB1,BSI,IRPAR)                                        40  668
      BSI = BSI + 1                                                     40  669
      CALL GETBY(INTDU,INDEX,INTD)                                      40  670
      IF(INTD.EQ.0) GO TO 670                                           40  671
      CALL DCMAL(BSI,INTD)                                              40  672
      INDEX = INDEX + 1                                                 40  673
      IF(I.EQ.7) CALL CRLF(BSI,1)                                       40  674
      IF(I.EQ.14) CALL CRLF(BSI,1)                                      40  675
  660 CONTINUE                                                          40  676
      GO TO 680                                                         40  677
  670 CONTINUE                                                          40  678
C                                                                       40  679
C        ERASE LAST 4 CHARACTERS                                        40  680
C                                                                       40  681
      BSI = BSI - 4                                                     40  682
  680 CONTINUE                                                          40  683
      IRW = 14                                                          40  684
      ICOL = 25                                                         40  685
      CALL SETCR(BSI,IRW,ICOL)                                          40  686
      CALL GETBY(MI,NMC,NTR)                                            40  687
      IF(NTR.EQ.0) GO TO 690                                            40  688
      NCHAR = 24                                                        40  689
      CALL CNVT(TMRPM,NCHAR,BSI)                                        40  690
      GO TO 900                                                         40  691
  690 CONTINUE                                                          40  692
      BSI = BSI + 4                                                     40  693
      NCHAR = 20                                                        40  694
      CALL CNVT(H1LNK,NCHAR,BSI)                                        40  695
      CALL CRLF(BSI,2)                                                  40  696
      NCHAR = 44                                                        40  697
      CALL CNVT(H2LNK,NCHAR,BSI)                                        40  698
      CALL CRLF(BSI,1)                                                  40  699
      CALL CNVT(H3LNK,NCHAR,BSI)                                        40  700
      CALL CRLF(BSI,2)                                                  40  701
      LINKT=6*(NMC-1)                                                   40  702
      LINK=LINKT+6                                                      40  703
  710 CONTINUE                                                          40  704
      IF(LINK.LE.LINKT) GO TO 900                                       40  705
      CALL HALF(CNTLN,LINKT+1,LNKC)                                     40  706
      IF(LNKC.LT.0) GO TO 725                                           40  707
      BSI=BSI+1                                                         40  708
C                                                                       40  709
      LNKC = LNKC + 1                                                   40  710
      CALL DISNM(BSI,LNKC)                                              40  711
      BSI = BSI + 5                                                     40  712
      CALL GETBY(LNKPH,LNKC,LPH)                                        40  713
      CALL PTBY(CNTB1,BSI,LPHAS(LPH+1))                                 40  714
      BSI = BSI + 6                                                     40  715
      CALL GETBY(LNKDI,LNKC,LDI)                                        40  716
      NCHAR = 2                                                         40  717
      CALL CNVT(DIRCT(LDI+1),NCHAR,BSI)                                 40  718
      BSI = BSI + 5                                                     40  719
      CALL GETBY(DFAIL,LNKC,IDF)                                        40  720
      IF(IDF.NE.0) GO TO 730                                            40  721
      CALL GETBY(NDBL,LNKC,NI)                                          40  722
```

```
      IF(NI.EQ.0) GO TO 735                                              40  723
      CALL HALF(AMCC,LNKC,IAMCC)                                         40  724
C                                                                        40  725
C        CONVERT MCCUPANCY TO PER CENT AND SCALE FROM B15 TO B0          40  726
C                                                                        40  727
      IAMCC = IAMCC/128                                                  40  728
      IAMCC = IAMCC * 100                                                40  729
      IAMCC = IAMCC/256                                                  40  730
      CALL DISNM(BSI,IAMCC)                                              40  731
      BSI = BSI + 4                                                      40  732
      CALL HALF(IVBL,LNKC,IVBL)                                          40  733
      IVBL = IVBL/2                                                      40  734
      CALL DISNM(BSI,IVBL)                                               40  735
      BSI = BSI + 4                                                      40  736
      CALL GETBY(SBAR,LNKC,ISBAR)                                        40  737
      ISBAR = (ISBAR+2)/4                                                40  738
      CALL DISNM(BSI,ISBAR)                                              40  739
  720 CONTINUE                                                           40  740
      CALL CRLF(BSI,1)                                                   40  741
  725 CONTINUE                                                           40  742
      LINKT = LINKT + 1                                                  40  743
      GO TO 710                                                          40  744
C                                                                        40  745
C        INOPERATIVE LINK                                                40  746
C                                                                        40  747
  730 CONTINUE                                                           40  748
      NCHAR = 16                                                         40  749
      CALL CNVT(LINKB,NCHAR,BSI)                                         40  750
      CALL CRLF(BSI,1)                                                   40  751
      LINKT = LINKT + 1                                                  40  752
      GO TO 710                                                          40  753
C  DUMMY LINKS                                                           40  754
  735 CONTINUE                                                           40  755
      NCHAR=12                                                           40  756
      CALL CNVT(LINKDM,NCHAR,BSI)                                        40  757
      CALL CRLF(BSI,1)                                                   40  758
      GO TO 725                                                          40  759
C                                                                        40  760
C        NO LINKS                                                        40  761
C                                                                        40  762
  740 CONTINUE                                                           40  763
      IBSW = 20                                                          40  764
      ICBL = 25                                                          40  765
      CALL SETCR(BSI,IBSW,ICBL)                                          40  766
      NCHAR = 16                                                         40  767
      CALL CNVT(MNCNT,NCHAR,BSI)                                         40  768
      GO TO 900                                                          40  769
C                                                                        40  770
C        PUT OUT STANDBY OR FAIL HEADER                                  40  771
C                                                                        40  772
  750 CONTINUE                                                           40  773
      CALL GETBI(CMALF,IB,ICMLF,1)                                       40  774
      IH = 6                                                             40  775
      IF(ICMLF.EQ.0) IH = 1                                              40  776
      GO TO 650                                                          40  777
C                                                                        40  778
C        PUT OUT NOT INSTRUMENTED                                        40  779
C                                                                        40  780
  760 CONTINUE                                                           40  781
      IH = 4                                                             40  782
      GO TO 640                                                          40  783
C                                                                        40  784
C        CIC RELEASE                                                     40  785
C                                                                        40  786
  770 CONTINUE                                                           40  787
      IH = 5                                                             40  788
      GO TO 640                                                          40  789
C                                                                        40  790
C        PANIC ERROR MESSAGE                                             40  791
C                                                                        40  792
  800 CONTINUE                                                           40  793
      BSI = BSI + 2                                                      40  794
      IF(NMRT.NE.0) GO TO 820                                            40  795
      IBYTE = 25                                                         40  796
      DO 810 I=1,5                                                       40  797
      IBYTE = IBYTE + 1                                                  40  798
      CALL GETBY(IMB,I,ITIM)                                             40  799
      CALL PTBY(PMESS,IBYTE,ITIM)                                        40  800
  810 CONTINUE                                                           40  801
      NMRT = 1                                                           40  802
  820 CONTINUE                                                           40  803
      NCHAR = 195                                                        40  804
      CALL CNVT(PMESS,NCHAR,BSI)                                         40  805
C                                                                        40  806
C        CRT WRAP-UP  GET BYTE COUNT AND TRIGGER THE CRT DEVICE          40  807
C                                                                        40  808
  900 CONTINUE                                                           40  809
      IF(BSI.GE.2048) BSI = BSI - 2048                                   40  810
      NCRT = 2                                                           40  811
      IF(CRTNM.EQ.0) NCRT = 1                                            40  812
      BYTCT(NCRT) = BSI                                                  40  813
  920 IF(CRTF1+CRTF2.EQ.0) GO TO 910                                     40  814
      MAST(MAST) = 1                                                     40  815
      RETURN                                                             40  816
  910 CONTINUE                                                           40  817
C                                                                        40  818
C        TRIG IS AN ASSEMBLY LANGUAGE ROUTINE TO CALL THE CRT DEVICE     40  819
C                                                                        40  820
      CALL TRIG                                                          40  821
      RETURN                                                             40  822
      END                                                                40  823
```

2.6.39 SUBROUTINE CIC

```
ROUTINE  CIC

C   *   CIC                                                                  45    1
      SUBROUTINE CIC(ICEF,IR4,CICCT)                                         45    2
C                                                                            45    3
C        SUBROUTINE CIC COUNTS THE NUMBER OF ACTIVE CRITICAL                 45    4
C        INTERSECTION CONTROLLERS                                            45    5
C                                                                            45    6
C        INPUT                                                               45    7
C          ICEF = BASE INDEX FOR BIT INTERLEAVED ARRAY (CICEF)               45    8
C          IR4  = BASE INDEX FOR BIT ARRAY (CIC5C)                           45    9
C        CICCT= NUMBER OF CICS TO BE RETURNED                                45   10
C                                                                            45   11
C                                                                            45   12
      INTEGER    CICEF    , CIC5C   , CICCT   , CICBP                       45   13
      COMMON /BLK12/  CIC5C(16)   ,  CIC5Y(8)    ,  CTL5C(16)   ,           45   14
     2 CTL5Y(4),CNSEC(31),CNTZN(19),LNKCN(A9),                               45   15
     * TIMCM(4)    ,  ZSI(32)                                                45   16
      COMMON /BLK15/  C45ET       ,  HAUFL       ,  IGPI        ,           45   17
     * MNUMF       ,  NBMCH       ,  NCW22       ,  NCWD2       ,           45   18
     * NCWRD       ,  N4ANP       ,  NMCTL       ,  NMLNK       ,           45   19
     * NMSCT       ,  NMVED       ,  NPATB       ,  NPB4        ,           45   20
     * NMESP       ,  NSTM1       ,  TBSIZ       ,  TBYTE       ,           45   21
     * CS          ,  D5          ,  FS          ,  NS          ,           45   22
     * QS          ,  R5          ,  S5          ,  SCS                     45   23
      COMMON /BLK17/  ADVNM(8)    ,  CICBP(8)    ,  CPABG(8)    ,           45   24
     * IADPI(8)    , CNTDR(124) , CNTNM       , IL2          ,           45   25
     * INTNM(31)   ,  ITNML(31)   ,  INTBU(32)   ,  KL2         ,           45   26
     * STRTM(32), TIMEB(32), QVBK(A9)                                       45   27
      EQUIVALENCE (CICEF(1),CICBP(9))                                        45   28
      IR3 = ICEF                                                             45   29
   10 CONTINUE                                                               45   30
      DO 20 I=1,32                                                           45   31
      INDX1 = (IR3+32) + I                                                   45   32
      INDX2 = (IR4+32) + I                                                   45   33
      CALL GETBI(CICEF,INDX1,IBIT,3)                                         45   34
      CALL GETBI(CIC5C,INDX2,JBIT,3)                                         45   35
      IF(IBIT+JBIT.EQ.2) CICCT = CICCT + 1                                   45   36
   20 CONTINUE                                                               45   37
      IR3 = IR3 + 2                                                          45   38
      IR4 = IR4 + 1                                                          45   39
      IF(IR3.LE.NCW22) GO TO 10                                              45   40
      RETURN                                                                 45   41
      END                                                                    45   42
```

2.6.40 SUBROUTINE CNVT

```
ROUTINE:  CNVT

C   *   CNVT                                                                  48    1
      SUBROUTINE CNVT(ADDR,NUM,BSI)                                           48    2
C                                                                             48    3
C        SUBROUTINE TO CONVERT EBCDIC CHARACTERS TO ASCII CHARACTERS          48    4
C                                                                             48    5
C        INPUT                                                                48    6
C            ADDR = ADDRESS OF CHARACTER STRING                               48    7
C            NUM  = NUMBER OF CHARACTERS TO BE CONVERTED                      48    8
C            BSI  = CRT OUTPUT BUFFER (CRTB1) STORE INDEX                     48    9
C                                                                             48   10
      INTEGER    ADDR     , BSI      , CHAR     , CHSET    , CONV1    ,      48   11
     *           CRTB1    , TASC     , TEBC     , UPPER                      48   12
      DIMENSION  ADDR(512), UPPER(4), LOWER(4),  TEBC(9),  TASC(9),          48   13
     *           CONV1(4)                                                    48   14
C                                                                             48   15
      COMMON /BLK15/  CHSET       ,  HBUFL       ,  IGPI        ,           48   16
     * MNUMF        ,  NBMCH       ,  NCW22       ,  NCWD2       ,           48   17
     * NCWRD        ,  NMANP       ,  NMCTL       ,  NMLNK       ,           48   18
     * NMSCT        ,  NMVED       ,  NPATB       ,  NP84        ,           48   19
     * NRESP        ,  NSTM1       ,  TBSIZ       ,  TBYTE       ,           48   20
     * CS           ,  DS          ,  FS          ,  NS          ,           48   21
     * QS           ,  RS          ,  SS          ,  SCS                     48   22
      COMMON /BLK22/  CRTB1(512)  ,  CRTB2(512)  ,  CRTD1       ,           48   23
     * CRTD2        ,  CRTF1       ,  CRTF2       ,  FLRFL                   48   24
C                                                                             48   25
C        THE FOLLOWING DATA STATEMENT CONTAINS DECIMAL CONSTANTS WHICH        48   26
C        REPRESENT THE UPPER AND LOWER NUMERICAL LIMITS FOR THE EBCDIC        48   27
C        ALPHA CHARACTERS.  (A = I), (J = R), (S = Z), (0 = 9)                48   28
C                                                                             48   29
      DATA LOWER(1), UPPER(1), LOWER(2), UPPER(2), LOWER(3), UPPER(3),        48   30
     *     LOWER(4), UPPER(4)/ 192,202,  208,218,  225,234,  239,250/       48   31
C                                                                             48   32
C        THIS DATA STATEMENT CONTAINS THE EBCDIC SPECIAL CHARACTERS           48   33
C        (NULL,SPACE, . , ( , ) , + , $ , * , ; )                            48   34
C                                                                             48   35
      DATA TEBC(1), TEBC(2), TEBC(3), TEBC(4), TEBC(5), TEBC(6),              48   36
     *     TEBC(7), TEBC(8), TEBC(9)/ 0, 64, 75, 77, 93, 96, 91, 122,94/    48   37
C                                                                             48   38
C        THE FOLLOWING STATEMENT CONTAINS THE CORRESPONDING ASCII             48   39
C        SPECIAL CHARACTERS                                                   48   40
C                                                                             48   41
      DATA TASC(1), TASC(2), TASC(3), TASC(4), TASC(5), TASC(6),              48   42
     *     TASC(7), TASC(8), TASC(9)/ 0, 32, 46, 40, 41, 45, 35, 59, 13/    48   43
C                                                                             48   44
C        THE FOLLOWING DATA STATEMENT CONTAINS THE NUMERICAL CONVERSION       48   45
C        FACTORS FOR THE ALPHANUMERIC EBCDIC CHARACTER SET                    48   46
C                                                                             48   47
      DATA CONV1(1), CONV1(2), CONV1(3), CONV1(4)/ 128, 135, 143, 192/        48   48
C                                                                             48   49
C        IF THIS IS AN ASCII MACHINE, JUST STORE DATA IN CRT BUFFER           48   50
C        WITHOUT CONVERTING                                                   48   51
C                                                                             48   52
      IF(CHSET.EQ.48) GO TO 80                                                48   53
C                                                                             48   54
C        FIND NUMBER OF CHARACTERS TO BE CONVERTED                            48   55
C                                                                             48   56
      IN = 1                                                                  48   57
   10 CONTINUE                                                                48   58
      INDEX = 4                                                               48   59


      CALL GETBY(ADDR,IN,CHAR)                                                48   60
   20 CONTINUE                                                                48   61
C                                                                             48   62
C        DETERMINE IF EBCDIC CHARACTER IS ALPHANUMERIC                        48   63
C                                                                             48   64
      IF(CHAR.LT.LOWER(INDEX)) GO TO 30                                       48   65
      IF(CHAR.GT.UPPER(INDEX)) GO TO 30                                       48   66
C                                                                             48   67
C        CONVERT CHARACTER TO ASCII AND STORE IN CRT BUFFER                   48   68
C                                                                             48   69
      CHAR = CHAR - CONV1(INDEX)                                              48   70
      CALL PTBY(CRTB1,BSI,CHAR)                                               48   71
      BSI = BSI + 1                                                           48   72
      GO TO 70                                                                48   73
   30 CONTINUE                                                                48   74
      INDEX = INDEX - 1                                                       48   75
      IF(INDEX.GT.0) GO TO 20                                                 48   76
      INDEX = 9                                                               48   77
   40 CONTINUE                                                                48   78
C                                                                             48   79
C        FIND EBCDIC SPECIAL CHARACTER                                        48   80
C                                                                             48   81
      IF(CHAR.NE.TEBC(INDEX)) GO TO 60                                        48   82
C                                                                             48   83
C        STORE ASCII SPECIAL CHARACTER IN CRT BUFFER AND INCREMENT            48   84
C        COUNTER                                                              48   85
C                                                                             48   86
      IASC = IASC(INDEX)                                                      48   87
   50 CONTINUE                                                                48   88
      CALL PTBY(CRTB1,BSI,IASC)                                               48   89
      BSI = BSI + 1                                                           48   90
      GO TO 70                                                                48   91
   60 CONTINUE                                                                48   92
      INDEX = INDEX - 1                                                       48   93
      IF(INDEX.GT.0) GO TO 40                                                 48   94
C                                                                             48   95
```

```
C        ASCII EQUAL SIGN = 61                                          48   96
C                                                                       48   97
      IASC = 61                                                         48   98
      GO TO 80                                                          48   99
   70 CONTINUE                                                          48  100
C                                                                       48  101
C        INCREMENT CHARACTER COUNT AND CHECK FOR LAST ONE               48  102
C                                                                       48  103
      IN = IN + 1                                                       48  104
      IF(IN.LE.NUM) GO TO 10                                            48  105
      RETURN                                                            48  106
C                                                                       48  107
C        STORE ASCII CHARACTERS DIRECTLY INTO CRT BUFFER                 48  108
C                                                                       48  109
   80 CONTINUE                                                          48  110
      DO 90 I=1,NUM                                                     48  111
      CALL GETBY(ADDR,I,CHAR)                                           48  112
      CALL PTBY(CMTB1,BSI,CHAR)                                         48  113
      BSI = BSI + 1                                                     48  114
   90 CONTINUE                                                          48  115
      RETURN                                                            48  116
      END                                                               48  117
```

2.6.41 SUBROUTINE CRLF

```
ROUTINE:  CRLF

      C   *  CRLF                                                          51    1
          SUBROUTINE CRLF(BSI,N)                                          51    2
      C                                                                   51    3
      C        SUBROUTINE CRLF SPACES THE CRT CURSOR DOWN (N) LINES       51    4
      C                                                                   51    5
      C        INPUT                                                      51    6
      C          BSI = CRT BUFFER STORE INDEX                             51    7
      C          N   = NUMBER OF LINES TO SPACE DOWN ON CRT               51    8
      C                                                                   51    9
      C                                                                   51   10
          INTEGER    BSI      , CRTB1                                     51   11
          COMMON /BLK22/  CRTB1(512)  ,  CRTB2(512)  ,  CRTD1            51   12
         * CRTD2       ,  CRTF1       ,  CRTF2       ,  FLAFL            51   13
          DATA ICR/ 13/                                                   51   14
      C                                                                   51   15
          DO 10 I=1,N                                                     51   16
          CALL PTBY(CRTB1,BSI,ICR)                                        51   17
          BSI = BSI + 1                                                   51   18
       10 CONTINUE                                                        51   19
          BSI = BSI + 1                                                   51   20
          RETURN                                                          51   21
          END                                                             51   22
```

2.6.42 SUBROUTINE DCMAL

ROUTINE: DCMAL

```
C     *   DCMAL                                                          50    1
      SUBROUTINE DCMAL(BSI,NUMB)                                         50    2
C                                                                        50    3
C        SUBROUTINE DCMAL CONVERTS A NUMBER SCALED B1 TO (10*SECONDS),   50    4
C        INSERTS A DECIMAL POINT AND STORES IT IN THE CRT BUFFER         50    5
C                                                                        50    6
C        INPUT                                                           50    7
C          BSI  - CRT BUFFER STORE INDEX                                 50    8
C          NUMB - NUMBER SCALED B1 TO BE CONVERTED TO F4.1 FORMAT        50    9
C                                                                        50   10
      INTEGER    BSI       , CRTB1                                       50   11
      COMMON /BLK22/  CRTB1(512)  ,  CRTB2(512)  ,  CRTD1              50   12
     * CNTD2       ,  CRTF1       ,  CRTF2       ,  FLAFL               50   13
C                                                                        50   14
      DATA IOP/'46'/                                                     50   15
C                                                                        50   16
C        CONVERT NUMBER TO 10 * SECONDS                                  50   17
C                                                                        50   18
      NUM = NUMB * 5                                                     50   19
      CALL DISNM(BSI,NUM)                                                50   20
      CALL GETBY(CRTB1,BSI-1,LAST)                                       50   21
      CALL PTBY(CNTB1,BSI-1,IOP)                                         50   22
      CALL PTBY(CNTB1,BSI,LAST)                                          50   23
      BSI = BSI + 1                                                      50   24
      RETURN                                                             50   25
      END                                                                50   26
```

2.6.43 SUBROUTINE DISIN

```
ROUTINE:  DISIN

C     *   DISIN                                                                  53    1
      SUBROUTINE DISIN(BPI)                                                      53    2
C                                                                                53    3
C        SUBROUTINE DISIN INITIALIZES THE CRT BUFFER                             53    4
C                                                                                53    5
C           BPI  =  BYTE INDEX FOR CRT BUFFER (CRTB1)                            53    6
C                                                                                53    7
      INTEGER    BPI      , CRTB1                                                53    8
C                                                                                53    9
      COMMON /BLK15/  CHSET       ,  MBUFL       ,  IGPI        ,              53   10
     * MNUMF        ,  NBMCH       ,  NCH22       ,  NCHDP       ,              53   11
     * NCARD        ,  NMARP       ,  NMCTL       ,  NMLNK       ,              53   12
     * NMSCT        ,  NMVED       ,  NPATB       ,  NPB4        ,              53   13
     * NRESP        ,  NSTM1       ,  TBSIZ       ,  TBYTE       ,              53   14
     * CS           ,  DS          ,  FS          ,  NS          ,              53   15
     * QS           ,  RS          ,  SS          ,  SCS                        53   16
      COMMON /BLK22/  CRTB1(512)  ,  CRTB2(512)  ,  CRTD1       ,              53   17
     * CRTD2        ,  CRTF1       ,  CRTF2       ,  FLRFL                      53   18
      DATA LEAD / 126/                                                           53   19
      DATA ICLR /  28/                                                           53   20
      DATA IDEL / 127/                                                           53   21
      DATA ISBKG/  25/                                                           53   22
      DATA IBLNK/ 32/                                                            53   23
      IBYTE = NBMCH/8                                                            53   24
C                                                                                53   25
C        FORM ONE WORD OF BLANKS                                                 53   26
C                                                                                53   27
      DO 10 I=1,IBYTE                                                            53   28
      CALL PTBY(IBLNK,I,IBLNK)                                                   53   29
   10 CONTINUE                                                                   53   30
C                                                                                53   31
C        BLANK OUT REMAINING WORDS IN THE CRT BUFFER                             53   32
C                                                                                53   33
      NCHTB = (BPI+2046)/IBYTE                                                   53   34
      ISTRT = BPI/IBYTE + 1                                                      53   35
      DO 20 I=ISTRT,NCHTB                                                        53   36
      CRTB1(I) = IBLNK                                                           53   37
   20 CONTINUE                                                                   53   38
C                                                                                53   39
C        STORE FIRST TWO WORDS IN CRT BUFFER                                     53   40
C                                                                                53   41
      CALL PTBY(CHTB1,BPI  ,LEAD)                                                53   42
      CALL PTBY(CHTB1,BPI+1,ICLR)                                                53   43
      CALL PTBY(CHTB1,BPI+2,IDEL)                                                53   44
      CALL PTBY(CHTB1,BPI+3,IDEL)                                                53   45
      CALL PTBY(CHTB1,BPI+4,LEAD)                                                53   46
      CALL PTBY(CHTB1,BPI+5,ISBKG)                                               53   47
      CALL PTBY(CHTB1,BPI+6,0)                                                   53   48
      CALL PTBY(CHTB1,BPI+7,0)                                                   53   49
      BPI = BPI + 8                                                              53   50
      RETURN                                                                     53   51
      END                                                                        53   52
```

2.6.44 SUBROUTINE DISNM

```
ROUTINE:  DISNM

      C   *   DISNM
          SUBROUTINE DISNM(BPI,NUMB)                                        52    1
                                                                            52    2
      C                                                                     52    3
      C       SUBROUTINE DISNM CONVERTS A BINARY NUMBER TO ASCII AND STORES 52    4
      C       RESULT IN THE CRT BUFFER (CRTB1)                              52    5
      C                                                                     52    6
      C         BPI  -  BYTE INDEX OF CRT BUFFER (CRTB1)                    52    7
          INTEGER    BPI      , CRTB1                                       52    8
      C                                                                     52    9
          COMMON /BLK22/  CRTB1(512)  ,  CRTB2(512)  ,  CRTD1               52   10
         * CRTD2        ,  CRTF1       ,  CRTF2       ,  FLREL              52   11
          NUM = NUMB                                                        52   12
          INDEX = BPI + 3                                                   52   13
      C                                                                     52   14
      C       ISOLATE BINARY DIGIT                                          52   15
      C                                                                     52   16
          DO 20 I=1,4                                                       52   17
          IREST = NUM/10                                                    52   18
          IREM = NUM - IREST*10                                             52   19
          IF(IREST.NE.0) GO TO 10                                           52   20
          IF(IREM.NE.0) GO TO 10                                            52   21
          IF(I.EQ.1) GO TO 10                                               52   22
          IREM = -16                                                        52   23
       10 CONTINUE                                                          52   24
      C                                                                     52   25
      C       CONVERT FROM BINARY DIGIT TO ASCII CHARACTER AND STORE IN      52   26
      C       CRT BUFFER (CRTB1) AT LOCATION BPI                            52   27
      C                                                                     52   28
          IREM = IREM + 48                                                  52   29
          CALL PTBY(CRTB1,INDEX,IREM)                                       52   30
          INDEX = INDEX - 1                                                 52   31
          NUM = IREST                                                       52   32
       20 CONTINUE                                                          52   33
          BPI = BPI + 4                                                     52   34
          RETURN                                                            52   35
          END                                                               52   36
```

2.6.45 SUBROUTINE GREEN

```
ROUTINE:  GREEN

C   *   GREEN                                                                  27    1
      SUBROUTINE GREEN(BSI,INDEX,IPHAS)                                        27    2
C                                                                              27    3
C       THIS ROUTINE STORES THE DESIRED PHASE LABEL IN THE CRT BUFFER          27    4
C                                                                              27    5
C       INPUTS                                                                 27    6
C          BSI   = CRT BUFFER STORE INDEX                                      27    7
C          INDEX = INDEX FOR GGGG AND SSSS ARRAYS                              27    8
C          IPHAS = 1  A-PHASE GREEN                                            27    9
C                  2  B-PHASE GREEN                                            27   10
C                  3  C-PHASE GREEN                                            27   11
C                                                                              27   12
C                                                                              27   13
      INTEGER    APHAS    , BSI     , SSSS    , VRINT                         27   14
      DIMENSION APHAS(3,3)                                                     27   15
      COMMON /KKKKK/  CNT10       ,  NMC       , NMC4    ,  NMC16  ,         27   16
     * TRUN1(4)                                                               27   17
      COMMON /BLK14/  CLENG       ,  DTLNG     ,  CMLNG       ,              27   18
     * DUMY1, DUMY2, CNTLN(372),ENTFL(5),                                     27   19
     * KCL(17), KCTF(17), KCSF(17),                                           27   20
     * NMVAR(31)    ,  SEMSK(8)     ,  VRINT(123)  ,  LNKPT(64)              27   21
      COMMON /BLK18/  CICTF(8)    ,  CTBOF(8)    ,  STBYD(8)    ,            27   22
     * CONTB(62)    ,  CURBF(31)    ,  CYCLC(31)   ,  ENINT(496)  ,          27   23
     * ENBFF(31)    ,  GGGT(124)    ,  GAWTP(31)   ,  GBWTP(31)   ,          27   24
     * GLABC(124)   ,  GGGG(124)    ,  GUABC(124)  ,  INTDU(496)  ,          27   25
     * SSSS(124)    ,  TKM(31)      ,  WRKBF(31)                             27   26
      DATA APHAS(1,1),APHAS(2,1),APHAS(3,1) / 'A PH','ASE ','GR. ' /         27   27
      DATA APHAS(1,2),APHAS(2,2),APHAS(3,2) / 'B PH','ASE ','GR. ' /         27   28
      DATA APHAS(1,3),APHAS(2,3),APHAS(3,3) / 'C PH','ASE ','GR. ' /         27   29
      NUMB = 0                                                               27   30
      BSI = BSI + 6                                                          27   31
      NCHAR = 12                                                             27   32
      CALL CNVT(APHAS(1,IPHAS),NCHAR,BSI)                                    27   33
      CALL GETBY(NMVAR,NMC,NVI)                                              27   34
      IF((INDEX-NMC4).GE.NVI) GO TO 10                                       27   35
      CALL GETBY(SSSS,INDEX,ISSS)                                            27   36
      CALL GETBY(VRINT,INDEX,INTV)                                           27   37
      INDX = INTV + NMC16                                                    27   38
      CALL GETBY(INTDU,INDX,IVV)                                             27   39
      NUMB = ISSS + IVV                                                      27   40
   10 CONTINUE                                                               27   41
      CALL DECMAL(BSI,NUMB)                                                  27   42
      CALL CRLF(BSI,1)                                                       27   43
      RETURN                                                                 27   44
      END                                                                    27   45
```

2.6.46 SUBROUTINE KFTU

```
ROUTINE: KFTU

C   *   KFTU                                                                  44    1
      SUBROUTINE KFTU                                                         44    2
C                                                                             44    3
C        SUBROUTINE KFTU RECORDS FAILURES IN THE FAIL TABLE AND TURNS         44    4
C        FAILURE LIGHT AND ALARM ON.                                          44    5
C                                                                             44    6
      INTEGER ALARM                                                           44    7
      INTEGER TIME , BLANK                                                    44    8
      INTEGER  AMCC ,  BYTCT,  BSI  ,  CICCT,  CICEF,  CICSF,  CICSC,        44    9
     * CICTF,  CMALF,  CMMAL,  CNSEC,  CNTLN,  CRTF1,  CRTF2,  CRTNM,        44   10
     * CRTR2,  CRTA1,  CRTA2,  CRTB1,  CRTB2,  CRTD1,  CRTD2,  CUR0F,        44   11
     * C0NTB,  CMTAB,  CPN0T,  CYCLC,  CMLNG,  CLENG,  DTLNG,  DAL  ,        44   12
     * DTTAB,  DM0DE,  DIS  ,  DMALF,  DFAIL,  ENTFL,  EN0FF,  FLTAB,        44   13
     * GGGG ,  H0LD ,  PATNM,  SLDFC,  SECFC,  SBAR ,  V0L  ,  CNT10,        44   14
     * CMSET,  FTAB ,  FT0AD,  FLRFL,  FMTCP,  FMTNU,  FMTTY,  SSSS ,        44   15
     * STATE,  VRINT                                                        44   16
C                                                                             44   17
      DIMENSION TIME(4)                                                       44   18
      DIMENSION LENG(3)                                                       44   19
      C0MM0N /BLK0 /  FMC          ,  FMARK        ,  MAST(9)      ,        44   20
     * MMAST        ,  JMAST        ,  KMAST        ,  EMAST        ,        44   21
     * HMAST        ,  WMAST        ,  QMAST        ,  IMAST        ,        44   22
     * SPACE        ,  MP0KY        ,  QCNT                                 44   23
      C0MM0N /BLK10/  CICSC(16)    ,  CICSY(8)     ,  CTLSC(16)    ,        44   24
     2 CTLSY(4),CNSEC(31),CNTZN(19),LNKCN(A9),                              44   25
     * TIMCH(4)     ,  ZSI(32)                                              44   26
      C0MM0N /BLK13/  DWL(259)     ,  DWLP(17)     ,  E0DC         ,        44   27
     1 FTAB, FT0AD, M9EIF(69)                                               44   28
      C0MM0N /BLK14/  CLENG        ,  DTLNG        ,  CMLNG        ,        44   29
     * DUMY1, DUMY2, CNTLN(372),ENTFL(5),                                    44   30
     * KCL(17), KCTF(17), KCSF(17),                                         44   31
     * NMVAR(31)    ,  SEMSK(8)     ,  VRINT(123)   ,  LNKPT(64)            44   32
      C0MM0N /BLK15/  CHSET        ,  HBUFL        ,  IGPI         ,        44   33
     * MNUMF        ,  N8MCH        ,  NCW22        ,  NCWD2        ,        44   34
     * NCWRD        ,  NMANP        ,  NMCTL        ,  NMLNK        ,        44   35
     * NMSCT        ,  NMVED        ,  NPATB        ,  NPB4         ,        44   36
     * NMESP        ,  NSTM1        ,  TBSIZ        ,  TBYTE        ,        44   37
     * CS           ,  DS           ,  FS           ,  NS           ,        44   38
     * QS           ,  RS           ,  SS           ,  SCS                   44   39
      C0MM0N /BLK18/  CICTF(8)     ,  CT8DF(8)     ,  ST8YD(8)     ,        44   40
     * C0NTB(62)    ,  CUR0F(31)    ,  CYCLC(31)    ,  ENINT(496)   ,        44   41
     * EN0FF(31)    ,  GGGT(124)    ,  GAWTP(31)    ,  GBATP(31)    ,        44   42
     * GLABC(124)   ,  GGGG(124)    ,  GUABC(124)   ,  INTDU(496)   ,        44   43
     * SSSS(124)    ,  TKM(31)      ,  WRK0F(31)                            44   44
      C0MM0N /BLK25/ AMCC(138), CMMAL(17), CMTAB(258),                        44   45
     * DTTAB(258)   ,  DIS(17)      ,  DMALF(17)    ,  DM0DE        ,        44   46
     * FLTAB(800)   ,  HRF          ,  M8DES        ,  NAI          ,        44   47
     * N0FAL, SBAR(69), SLCFC(4), SCDFC(4), V0L(138)                         44   48
      C0MM0N/BLK28/AGR(14),PIA(6),RCM(2),HS8(14),AP0M1(14),CPN8U,CPN0T,        44   49
     * MARR(640)    ,  MMAP(2)      ,  QCNT         ,  KCNT         ,        44   50
     * MNC15        ,  WMSBF        ,  CL0CK        ,  AMINF        ,        44   51
     * MINCT        ,  TAB(3)       ,  N0N9(8)                              44   52
      EQUIVALENCE (LENG(1),CLENG)                                             44   53
      DATA BLANK/ '    '/                                                     44   54
      DATA ALARM/ 16/                                                         44   55
      IBYTE = N8MCH/6                                                         44   56
   *  IFTA0 = FTAB + 1                                                        44   57
      I = 1                                                                   44   58
      IR1 = 1                                                                 44   59
                                                                              44   60
C        SUBROUTINE TODAY IS AN ASSEMBLY LANGUAGE ROUTINE THAT RETURNS        44   61
C        THE CURRENT TIME AND DATE (TIME IS DIMENSIONED TIME(4))              44   62
C                                                                             44   63
      CALL TODAY(TIME)                                                        44   64
                                                                              44   65
C        CHECK FAILURE ENTRY FLAGS                                            44   66
C                                                                             44   67
      IF(ENTFL(I).EQ.0) GO TO 20                                              44   68
      I = 3                                                                   44   69
   10 CONTINUE                                                                44   70
      IF(ENTFL(I).NE.0) GO TO 20                                              44   71
      I = I + 1                                                               44   72
      IF(I.GT.1) GO TO 10                                                     44   73
   20 CONTINUE                                                                44   74
      ITYPE = I + 2                                                           44   75
   30 CONTINUE                                                                44   76
C                                                                             44   77
C        GET PROPER TABLE AND ITS VALUE                                       44   78
C                                                                             44   79
      IF(I-2) 40,50,60                                                        44   80
   40 CONTINUE                                                                44   81
      CALL HALF(C0NTB,IR1,IEQPN)                                              44   82
      GO TO 70                                                                44   83
   50 CONTINUE                                                                44   84
      CALL HALF(DTTAB,IR1,IEQPN)                                              44   85
      GO TO 70                                                                44   86
   60 CONTINUE                                                                44   87
      CALL HALF(CMTAB,IR1,IEQPN)                                              44   88
   70 CONTINUE                                                                44   89
                                                                              44   90
C        ADVANCE FAIL TABLE COUNTER AND TEST FOR GREATER THAN MAX             44   91
C        ENTRIES                                                              44   92
C                                                                             44   93
      N0FAL = N0FAL + 1                                                       44   94
      IF(MNUMF.LT.N0FAL) GO TO 90                                             44   95
                                                                              44   96
C        STORE NO ACKNOWLEDGE IN FAIL TABLE                                   44   97
C                                                                             44   98
```

```
      CALL PTBY(FLTAB,IFTAB,0)                                          44   99
C                                                                       44  100
      IFTAB = IFTAB + 1                                                 44  101
C        STORE TYPE OF FAILURE IN TABLE                                 44  102
C                                                                       44  103
      CALL PTBY(FLTAB,IFTAB,ITYPE)                                      44  104
C                                                                       44  105
C        IS THIS A DETECTOR OR CONTROLLER COMMUNICATIONS FAILURE        44  106
C                                                                       44  107
      IF(I.EQ.1) GO TO 120                                              44  108
      CALL HALF(ICAL,IEQPN,IDAL)                                        44  109
      CALL GETBY(LNKCN,ICAL+1,ILNK)                                     44  110
      CALL GETBY(CNSEC,ILNK+1,ISEC)                                     44  111
      IF(ISEC.EQ.0) GO TO 80                                            44  112
      SCDFC(ISEC) = SCDFC(ISEC)+1                                       44  113
   80 CONTINUE                                                          44  114
C                                                                       44  115
C        STORE EQUIPMENT NUMBER IN FAIL TABLE                           44  116
C                                                                       44  117
      IFTBA = (IFTAB + IBYTE)/IBYTE                                     44  118
      CALL PTHLF(FLTAB(IFTBA),2,IEQPN)                                  44  119
      IFTAB = IFTAB + 3                                                 44  120
C                                                                       44  121
C        PUT TIME AND DATE IN FAIL TABLE                                44  122
C                                                                       44  123
      CALL PTBY(FLTAB,IFTAB,BLANK)                                      44  124
      CALL GETBY(TIME,1,IHR)                                            44  125
      CALL PTBY(FLTAB,IFTAB+1,IHR)                                      44  126
      CALL GETBY(TIME,2,IHR)                                            44  127
      CALL PTBY(FLTAB,IFTAB+2,IHR)                                      44  128
      CALL GETBY(TIME,4,IMIN)                                           44  129
      CALL PTBY(FLTAB,IFTAB+3,IMIN)                                     44  130
      IFTAB = IFTAB + 4                                                 44  131
      INDXT = 4/IBYTE                                                   44  132
      INDXF = (IFTAB + IBYTE)/IBYTE + 1                                 44  133
      IEND = 8/IBYTE                                                    44  134
      DO 85 J=1,IEND                                                    44  135
      INDXT = INDXT + 1                                                 44  136
      INDXF = INDXF + 1                                                 44  137
      FLTAB(INDXF) = TIME(INDXT)                                        44  138
   85 CONTINUE                                                          44  139
C                                                                       44  140
C        ADVANCE BYTE COUNTER TO NEXT FAIL TABLE ENTRY                  44  141
C                                                                       44  142
      IFTAB = IFTAB + 8                                                 44  143
   90 CONTINUE                                                          44  144
      IR1 = IR1 + 1                                                     44  145
      IF(IR1.LE.LENG(I)) GO TO 30                                       44  146
      IFTAB = IFTAB - 1                                                 44  147
C                                                                       44  148
C           SUBROUTINE INTRP IS AN ASSEMBLY LANGUAGE ROUTINE TO ENABLE  44  149
C        OR DISENABLE THE INTERUPTS                                     44  150
C           IRUPT = 0  DISENABLE                                        44  151
C           IRUPT = 1  ENABLE                                           44  152
C                                                                       44  153
C        DISENABLE INTERUPTS                                            44  154
C                                                                       44  155
      IRUPT = 0                                                         44  156
      CALL INTRP(IRUPT)                                                 44  157
C                                                                       44  158
      FTBWD = IFTAB/IBYTE                                               44  159
      FTAB = IFTAB                                                      44  160
      LENG(I) = 0                                                       44  161
      ENTFL(I) = 0                                                      44  162
      ENTFL(1) = -1                                                     44  163
C                                                                       44  164
C        ENABLE INTERUPTS                                               44  165
C                                                                       44  166
      IRUPT = 1                                                         44  167
      CALL INTRP(IRUPT)                                                 44  168
      IADD = ENTFL(2) + ENTFL(3) - 1                                    44  169
      IF(IADD.LT.0) GO TO 110                                           44  170
C                                                                       44  171
C        SCHEDULE RTNK FOR MORE PROCESSING                              44  172
C                                                                       44  173
      MAST(NMAST) = 1                                                   44  174
  100 CONTINUE                                                          44  175
C                                                                       44  176
C        TURN ON ALARM                                                  44  177
C                                                                       44  178
      CALL PTBI(CPNBT,ALARM,1,0)                                        44  179
C                                                                       44  180
C        TURN ON WARNING LIGHT                                          44  181
C                                                                       44  182
      LIGHT = I + 9                                                     44  183
      CALL PTBI(CPNBT,LIGHT,1,0)                                        44  184
C                                                                       44  185
C        GO TO NORMAL RETURN                                            44  186
C                                                                       44  187
      GO TO 130                                                         44  188
  110 CONTINUE                                                          44  189
      KCNT = 5                                                          44  190
      GO TO 100                                                         44  191
  120 CONTINUE                                                          44  192
      CALL GETBY(CNSEC,IEQPN,ISEC)                                      44  193
      SECFC(ISEC) = SECFC(ISEC) + 1                                     44  194
      GO TO 80                                                          44  195
C                                                                       44  196
C        SUBROUTINE RETU NORMAL RETURN                                  44  197
C                                                                       44  198
  130 CONTINUE                                                          44  199
      RETURN                                                            44  200
      END                                                               44  201
```

2.6.47 SUBROUTINE TODAY

```
ROUTINE: T9DAY

*   *   T9DAY                                                                   20   1
*         SUBROUTINE T9DAY(TIMBF)                                               20   2
*         . . ROUTINE TO GET CURRENT TIME OF DAY FROM RBM                       20   3
*                                                                               20   4
*
          DEF       T9DAY                                                       20   5
          REF       9SETUPA                                                     20   6
          RES       1                                                           20   7
TIMBF     RES       1                                                           20   8
          DATA      1                                                           20   9
PTMP1     RES       1                                                           20  10
T9DAY     RES       0                                                           20  11
          LI,5      1                                                           20  12
          BAL,6     9SETUPA                                                     20  13
          GEN,8,24  1,TIMBF                                                     20  14
          STA,15    PTMP1                                                       20  15
          CAL1,8    TIME                GET RBM TIME                            20  16
          LI,1      3                                                           20  17
LOOP      RES       0                                                           20  18
          LW,2      TBUFF,1             PUT TIME IN SUBROUTINE ARG              20  19
          STW,2     *TIMBF,1                                                    20  20
          AI,1      -1                                                          20  21
          BGEZ      LOOP                GET ALL 4 WORDS OF TIME                 20  22
          B         *PTMP1                                                      20  23
TIME      RES       0                                                           20  24
          GEN,8,24  X'10',WA(TBUFF)                                             20  25
TBUFF     RES       4                   TIME BUFFER                             20  26
          END                                                                   20  27
```

2.6.48 SUBROUTINE TRIG

```
RBUTINE: TRIG

      *   *   TRIG                                                          21    1
      *         SUBROUTINE TRIG                                           21    2
      *             ROUTINE TO TRIGGER CRT DEVICE                         21    3
      *                                                                   21    4
                  DEF       TRIG                                        21    5
      PTMP1       RES       1                                           21    6
      TRIG        RES       0                                           21    7
                  ST%,15    PTMP1                                       21    8
                  CAL1,5    TRIG4           TRIGGER THE CRT DEVICE      21    9
                  B         *PTMP1                                      21   10
      TRIG4       RES       0                                           21   11
                  DATA      X'68'                                       21   12
                  END                                                   21   13
```

2.6.49 SUBROUTINE SCODE

```
ROUTINE:  SCODE

C   *   SCODE                                                          49    1
      SUBROUTINE SCODE(BSI,ICHAR,IOUT,LINE,IRTRN)                      49    2
C                                                                      49    3
C        SUBROUTINE SCODE STORES THE DESIRED STATUS CODE FOR THE       49    4
C        DETECTORS AND CONTROLLERS IN THE CRT BUFFER                   49    5
C                                                                      49    6
C        INPUT                                                         49    7
C          BSI   = CRT BUFFER STORE INDEX                              49    8
C          ICHAR = STATUS CODE CHARACTER  (1 = S, 2 = F, 3 = C, 4 = I, 49    9
C                  5 = D)                                              49   10
C          IOUT  = CURREN NUMBER OF ITEMS ON THIS PRINT LINE           49   11
C          LINE  = CURRENT LINE COUNT                                  49   12
C          IRTRN = 0  MORE DATA TO BE OUTPUT, CONTINUE PROCESSING UPON 49   13
C                     RETURNING TO CALLING ROUTINE                     49   14
C                  1  LAST DATA, GO TO OUTPUT ARAP-UP UPON RETURNING   49   15
C                                                                      49   16
      INTEGER    BSI      , CNT1C   , CRTB1   , TRUN1                  49   17
      DIMENSION IC(5)                                                  49   18
C                                                                      49   19
      COMMON /KKKKK/  CNT1O       ,  NYC      ,  NYC6     ,  NYC16  ,  49   20
     * TRUN1(4)                                                        49   21
      COMMON /BLK22/  CRTB1(512)  ,  CRTB2(512)  ,  CRTD1       ,     49   22
     * CNTD2        ,  CRTF1       ,  CRTF2       ,  FLAG_           49   23
      DATA IC4/ 13/                                                    49   24
      DATA IC(1),IC(2),IC(3),IC(4),IC(5)/ A3, 7A, 67, 73, 4B/          49   25
      BSI = BSI + 1                                                    49   26
      CALL PTBY(CRTB1,BSI,IC(ICHAR))                                   49   27
      IOUT = IOUT + 1                                                  49   28
      BSI = BSI + 2                                                    49   29
      CNT1O = CNT1O + 1                                                49   30
      IF(CNT1O.GT.0) RETURN                                            49   31
      LINE = LINE + 1                                                  49   32
      IF(LINE.LT.23) GO TO 10                                          49   33
      IRTN = 27                                                        49   34
      ICOL = 26                                                        49   35
      CALL SETCR(BSI,IRTN,ICOL)                                        49   36
      NCHAR = 16                                                       49   37
      CALL CNVT(TRUN1,NCHAR,BSI)                                       49   38
C                                                                      49   39
C        COMPLETED TABLE RETURN                                        49   40
C                                                                      49   41
      IRTRN = 1                                                        49   42
      RETURN                                                           49   43
C                                                                      49   44
C        START A NEW LINE                                              49   45
C                                                                      49   46
   10 CONTINUE                                                         49   47
      CALL PTBY(CRTB1,BSI,ICH)                                         49   48
      BSI = BSI + 4                                                    49   49
      CNT1O = 10                                                       49   50
C                                                                      49   51
C        MORE DATA RETURN                                              49   52
C                                                                      49   53
      IRTRN = 0                                                        49   54
      RETURN                                                           49   55
      END                                                              49   56
```

2.6.50 SUBROUTINE SETCR

```
ROUTINE:  SETCR

C  *   SETCR                                                                  54    1
       SUBROUTINE SETCR(BPI,IROW,ICOL)                                        54    2
C                                                                             54    3
CC        SUBROUTINE SETCR INSERTS CURSOR CONTROL COMMANDS IN THE CRT         54    4
CC        BUFFER.                                                             54    5
CC        CALLING ARGUMENTS                                                   54    6
CC           BPI  =  CRT BUFFER POINTER INDEX                                 54    7
CC          IROW  =  BINARY ROW NUMBER                                        54    8
CC          ICOL  =  BINARY COLUMN NUMBER                                     54    9
C                                                                             54   10
       INTEGER    BPI      , CRTB1                                            54   11
C                                                                             54   12
       COMMON /BLK22/  CRTB1(512)  ,  CRTB2(512)  ,  CRTD1                   54   13
      * CRTD2          ,  CRTF1       ,  CRTF2       ,  FLAFL                54   14
       DATA LEAD/ 126/                                                        54   15
       DATA  ICP/  17/                                                        54   16
       IC = ICOL                                                              54   17
       IR = IROW                                                              54   18
       IR = IR+1                                                              54   19
C                                                                             54   20
CC        PUT LEAD-IN CHARACTER IN CRT BUFFER (FIRST BYTE = X'7E')            54   21
C                                                                             54   22
       CALL PTBY(CRTB1,BPI,LEAD)                                              54   23
       BPI = BPI + 1                                                          54   24
C                                                                             54   25
CC        SET CURSOR POSITION COMMAND                                         54   26
C                                                                             54   27
       CALL PTBY(CRTB1,BPI,ICP)                                               54   28
       BPI = BPI + 1                                                          54   29
C                                                                             54   30
CC        PUT ROW AND COLUMN NUMBER IN CRT BUFFER                             54   31
C                                                                             54   32
       CALL PTBY(CRTB1,BPI,IC)                                                54   33
       BPI = BPI + 1                                                          54   34
       CALL PTBY(CRTB1,BPI,IR)                                                54   35
       BPI = BPI + 1                                                          54   36
       RETURN                                                                 54   37
       END                                                                    54   38
```

2.6.51 ROUTINE M

```
ROUTINE:  RTNM

C  *   RTNM                                                                  55    1
       SUBROUTINE RTNM                                                       55    2
C                                                                            55    3
        DIMENSION AUTBF(7),CICEF(7),CMALF(7),                                55    4
      *          FSTCF(7),SPLCH(7),TRNSF(7)                                  55    5
       DIMENSION CMNIN(7)                                                    55    6
        DIMENSION  ICNT(2)                                                   55    7
C                                                                            55    8
C                                                                            55    9
C                                                                            55   10
        INTEGER TIMBUF                                                       55   11
        INTEGER AUTBF,CICEF,CMALF,FSTCF,SPLCH,TRNSF                          55   12
        INTEGER PRTFL                                                        55   13
       INTEGER QCNT                                                          55   14
       INTEGER          FMTTY       , FMTNU       , FMTCH                   55   15
       INTEGER  CN    , CNDIS,  CRTCL,  CRTF1,  CRTF2,  FLRFL,  FMSCF,      55   16
      * FMSYF,  FMTCH,  FMTNU,  FMTTY,  FSTFL,  HRF   ,  RTC   ,  SMTFL,    55   17
      * SN    ,  SRDIS,  SSFN ,  CNTD1,  CRTD2,  HFAST,  HMAST,TIMCH        55   18
C                                                                            55   19
       COMMON /BLK5/ IPRD, IWT, ITRDLY, JLIM(4)                              55   20
       COMMON /HBLDSB/ SURCBN(124),HLDSPL(4),HLDBFF(4),IGATEM,IGBTEM         55   21
       INTEGER SURCBN,HLDSPL,HLDBFF                                          55   22
C                                                                            55   23
       COMMON /BLK6 /  FMC          ,  FMARK        ,  MAST(9)      ,       55   24
      * MMAST        ,  JMAST       ,  KMAST        ,  EMAST        ,       55   25
      * HMAST        ,  WMAST       ,  QMAST        ,  IMAST        ,       55   26
      * SPACE        ,  MPBKY       ,  QCNT                                 55   27
C                                                                            55   28
       COMMON /BLK10/  CICSC(16)    ,  CICSY(8)     ,  CTLSC(16)    ,       55   29
      2 CTLSY(4),CNSEC(31),CNTZN(19),LNKCN(69),                              55   30
      * TIMCH(4)     ,  ZSI(32)                                             55   31
C                                                                            55   32
       COMMON /BLK12/ D(138), DAYNK, JJ,                                     55   33
      * LNKSI(3)     ,  PATNM(3)     ,  PRTFL        ,  SCNSI(2)     ,      55   34
      * SCCNT(29),SSFN                                                      55   35
C                                                                            55   36
       COMMON /BLK14/  CLENG        ,  DTLNG        ,  CMLNG        ,       55   37
      * DUMY1, DUMY2, CNTLN(372),ENTFL(5),                                  55   38
      * KCL(17), KCTF(17), KCSF(17),                                        55   39
      * NMVAR(31)   ,  SEMSK(8)     ,  VRINT(123)   ,  LNKPT(64)           55   40
C                                                                            55   41
       COMMON /BLK15/  CHSET        ,  HBUFL        ,  IGPI         ,       55   42
      * MNUMF        ,  NBMCH       ,  NCW22        ,  NCND2        ,       55   43
      * NCWRD        ,  NMANP       ,  NMCTL        ,  NMLNK        ,       55   44
      * NMSCT        ,  NMVED       ,  NPATB        ,  NPB4         ,       55   45
      * NRESP        ,  NSTM1       ,  TBSIZ        ,  TBYTE        ,       55   46
      * CS           ,  DS          ,  FS           ,  NS           ,       55   47
      * QS           ,  RS          ,  SS           ,  SCS                  55   48
C                                                                            55   49
       COMMON /BLK17/  ADVNM(8)     ,  CICBP(8)     ,  CPABJ(8)     ,       55   50
      * IADVP(8)     ,  CNTDR(124)  ,  CNTNM        ,  IL2          ,       55   51
      * INTNM(31)    ,  ITNML(31)   ,  INTBU(32)    ,  KL2          ,       55   52
      * STBTM(32), TIMEB(32), QVBK(69)                                      55   53
C                                                                            55   54
       COMMON /BLK18/  CICTF(8)     ,  CTBDF(8)     ,  STBYD(8)     ,       55   55
      * CNTB(62)     ,  CURBF(31)   ,  CYCLC(31)    ,  ENINT(496)   ,       55   56
      * ENBFF(31)    ,  GBGT(124)   ,  GAWTP(31)    ,  GBATP(31) *  ,       55   57
      * GLABC(124)   ,  GBGG(124)   ,  GUABC(124)   ,  INTDU(496)   ,       55   58
      * SSSS(124)    ,  TKM(31)     ,  WRKBF(31)                            55   59
C                                                                            55   60
       COMMON /BLK19/ CC2(129), DFAIL(69), DBF(17),                          55   61
      * MI(31)       ,  RAABC(258)  ,  RAWSP(258)   ,  RTC          ,       55   62
      * TSTRT(516)                                                          55   63
C                                                                            55   64
       COMMON /BLK21/  DPTNM        ,  FMSCF        ,  FMSYF        ,       55   65
      * WSBUF(1072), MCDF, TEWM(69)                                         55   66
C                                                                            55   67
       COMMON /BLK22/  CRTB1(512)   ,  CRTB2(512)   ,  CRTD1        ,       55   68
      * CRTD2        ,  CRTF1       ,  CRTF2        ,  FLRFL        ,       55   69
C                                                                            55   70
       COMMON /BLK24/ AHIST(138), CNDIS, DCF,                                55   71
      * DBW          ,  FMTBD       ,  FSTFL        ,  HLIDF        ,       55   72
      * HLIDT(96)    ,  NHDAY       ,  PRCBD        ,  PTN(745)     ,       55   73
      * SMTFL, SRDIS, THRSH, VHIST(138)                                     55   74
C                                                                            55   75
       COMMON /BLK25/ AHCC(138), CMMAL(17), CMTAB(258),                      55   76
      * DTTAB(258)   ,  DIS(17)     ,  DMALF(17)    ,  DMBDE        ,       55   77
      * FLTAB(80D)   ,  HRF         ,  MBDES        ,  NAI          ,       55   78
      * NBFAL, SBAR(69), SECFC(4), SCDFC(4), VBL(138)                       55   79
C                                                                            55   80
       COMMON/BLK28/AGR(14),PIA(6),RCM(2),HSB(14),APBM1(14),CPNBU,CPNBT,     55   81
      * MARR(540)    ,  MMAP(2)     ,  JCNT         ,  KCNT         ,       55   82
      * MNC15        ,  WHSBF       ,  CLBCK        ,  WMINF        ,       55   83
      * MINCT        ,  TAB(3)      ,  NBNB(8)                              55   84
C                                                                            55   85
       COMMON /BLK29/ ISYSTB,ISECSB(4)                                       55   86
C                                                                            55   87
       COMMON /HARGS/  FMTTY        ,  FMTNU        ,  FMTCH ,              55   88
      *                ITRNM(2)                                             55   89
C                                                                            55   90
         COMMON /MSUB1/MBIT(16),MCBDE,MTEST,MEXIT,IPRT,ITIME,MSER            55   91
C                                                                            55   92
        COMMON /MSUB2/TIMBUF(4),CRTCL                                        55   93
C                                                                            55   94
C ****   2=GC CHANGE                                                         55   95
       COMMON /G2CBNT/ WRKBFS(124),IA(124),IEA(31),ENTCYC(31),SPLIT(124),    55   96
      1 CGRPN(31)                                                            55   97
        INTEGER WRKBFS,ENTCYC,SPLIT,CGRPN                                    55   98
```

```
      COMMON /BLKLVS/ LEVLSA,SRTNS,ENDS,ENDS1,MINCTS,MINSF,BPTIME,BPTIN   SS   99
      INTEGER SRTNS,ENDS,ENDS1,BPTIME,BPTIN                               SS  100
C *******                                                                 SS  101
C                                                                       SS  102
      EQUIVALENCE (CRTD1,ICRT(1)), (CRTD2,ICRT(2))                      SS  103
      EQUIVALENCE (AUTBF(1),ADVM(2)), (CICEF(1),CTBDF(2)),              SS  104
     *            (CMALF(1),CICTF(2)), (FSTCF(1),CPABG(2)),             SS  105
     *            (INTIS(1),IADVP(2)), (SPLCH(1),SEMSK(2)),             SS  106
     *            (TRNSF(1),STBYD(2)), (KCMSP(1),RCM(2)) ,              SS  107
     *            (GAI(1),AGR(2)), (HBLD(1),HS9(2)),(APB(1),APBM1(2)),  SS  108
     *                             (LINKPM,LMXPT), (NDMAX,NMVED),       SS  109
     *            (MAXNC,NMCTL), (YIELD,IADVP),  (FSETF,FSTCF),         SS  110
     *            (CPNIN(1),PIA(2))                                     SS  111
C                                                                       SS  112
C             PRESET ALL MBIT ARRAY OFF                                 SS  113
      DO 10 I = 1,16                                                    SS  114
         MBIT(I) = -1                                                   SS  115
   10 CONTINUE                                                          SS  116
      MTEST = 0                                                         SS  117
      MEXIT = 0                                                         SS  118
      ITIME = 0                                                         SS  119
C                                                                       SS  120
C                                                                       SS  121
C                                                                       SS  122
C             INITIAL CALL TO MSUB TO UNPACK DATA                       SS  123
      MCODE = -1                                                        SS  124
      CALL MSUB                                                         SS  125
C       SET PRINT FLAG TO ZERO FOR 01 OR NON ZERO FOR OFF               SS  126
      PRTFL = IPRT                                                      SS  127
C             MEXIT = 1 FOR SYSTEM CONTROL ENTER                        SS  128
C                   = 2 FOR MAP CONTROL ENTER                           SS  129
C                   = 3 FOR STATUS DISPLAY ENTER                        SS  130
C                   = 4 FOR NO SELECTION                                SS  131
C                                                                       SS  132
      IF(MEXIT.GT.4) GO TO 1000                                         SS  133
      GO TO (100,300,400,1000) ,MEXIT                                   SS  134
C                                                                       SS  135
C    SYSTEM CONTROL ENTER SELECTED                                      SS  136
C A1/100      SYSTEM SHUT-DOWN                                          SS  137
C              EXIT IF PREVIOUSLY SELECTED                              SS  138
C                                                                       SS  139
  100  IF (SHTFL.NE.0)   GO TO 1080                                     SS  140
       IF (MTEST.NE.0)   GO TO  101                                     SS  141
C             SYSTEM SHUT-DOWN. SET FLAG AND SCHEDULE ROUTINE H         SS  142
       SHTFL=1                                                          SS  143
       MAST(MMAST) = 1                                                  SS  144
              GO TO 1000                                                SS  145
C                                                                       SS  146
C A3/101 DETERMINE TRAFFIC,CIC OR NO SELECTION                          SS  147
  101  IF(MBIT(2))1080,102,200                                          SS  148
C                                                                       SS  149
C B1/102      *TRAFFIC CONTROL, SYSTEM CONTROL ENTER*        FROM A3/101  SS  150
C                  5 CHOICES GO TO E1-E5                                SS  151
C                                SYSTEM  GOES TO E1                     SS  152
  102  IF (MBIT(3).EQ.0) GO TO 103                                      SS  153
C                                SECTION GOES TO E2                     SS  154
       IF (MBIT(4).EQ.0) GO TO 140                                      SS  155
C                                CONTROLLER TO E3                       SS  156
       IF (MBIT(5).EQ.0) GO TO 160                                      SS  157
C                                DETECTOR TO E4                         SS  158
       IF (MBIT(6).EQ.0) GO TO 175                                      SS  159
C                                COMMUNICATIONS TO E5                   SS  160
       IF (MBIT(7).EQ.0) GO TO 165                                      SS  161
C                                ERROR IF NO SELECTION                  SS  162
                         GO TO  1080                                    SS  163
C                                                                       SS  164
C      SYSTEM REQUEST FOR TRAFFIC CONTROL AND SYSTEM CONTROL ENTER      SS  165
C B1/103 FROM B1/102 *6 TYPES OF SYSTEM REQUESTS GO TO G1-G6*           SS  166
C                    ON LINE                                            SS  167
  103  IF (MBIT(10)) 106,104,106                                        SS  168
C                    ERROR IF PREVIOUSLY SELECTED                       SS  169
  104  IF (FSTFL) 1080,105,1080                                         SS  170
C                    SET FIRST START FLAG AND GO TO G3                  SS  171
  105  FSTFL= 1                                                         SS  172
              GO TO 120                                                 SS  173
C      FOR ANY OTHER SYSTEM REQUEST, FIRST START FLAG MUST BE SET       SS  174
  106  IF (FSTFL.EQ.0) GO TO 1080                                       SS  175
C                                TRAFFIC RESPONSIVE TO G1               SS  176
       IF (MBIT(8).EQ.0) GO TO 110                                      SS  177
C                                TIME-OF-DAY TO G2                      SS  178
       IF (MBIT(9).EQ.0) GO TO 115                                      SS  179
C                                STAND-BY TO G4                         SS  180
       IF (MBIT(11).EQ.0) GO TO 125                                     SS  181
C                                RECORD HISTORY ON TO G5                SS  182
       IF (MBIT(12).EQ.0) GO TO 130                                     SS  183
C                                RECORD HISTORY OFF TO G6               SS  184
       IF (MBIT(14).EQ.0) GO TO 135                                     SS  185
C                                NO SELECTION ERROR                     SS  186
                         GO TO 1040                                     SS  187
C B1/110 *TRAFFIC RESPONSIVE,FOR TRAFFIC CONTROL SYSTEM*   FROM B1/106  SS  188
C                 WAIT IF 15 MIN FLAG ON                                SS  189
  110  IF (FISCF.NE.0) GO TO 1050                                       SS  190
C ****   2-SEC CHANGE                                                   SS  191
       IF(LEVLSA.NE.0) GO TO 1050                                       SS  192
       IF(ISYSTO.GT.0) GO TO 1050                                       SS  193
       ITMDLY=0                                                         SS  194
       SSFW=0                                                           SS  195
       FMSCF=1                                                          SS  196
       JJ = 0                                                           SS  197
       MAST(MMAST)=1                                                    SS  198
C ********                                                              SS  199
C              SET CHANGE = TRAFFIC RESPONSIVE                          SS  200
        FMTCH = 4                                                       SS  201
C              SET MCODE  FOR G1 ENTRY                                  SS  202
       MCODE = 1                                                        SS  203
                                                                        SS  204
```

```
                GO TO 126                                                55  205
C G2/115        *TIME OF DAY, WAIT IF 15 MIN FLAG ON*       FROM E1/106  55  206
C                                                                        55  207
 115  IF(FMSCF .NE.0)GOTO 1050                                           55  208
C ****   2-SC CHANGE                                                     55  209
      IF(LEVLSA.NE.0) GO TO 1050                                         55  210
      IF(ISYSTB.GT.0) GO TO 1050                                         55  211
C ********                                                               55  212
C                                                                        55  213
       SSFA = 0                                                          55  214
       FMSCF= 1                                                          55  215
         JJ= 0                                                           55  216
       FMTCH= 3                                                          55  217
       MAST(MAST) = 1                                                    55  218
C              SET MODE FOR G2 ENTRY                                     55  219
       MODE = 2                                                          55  220
                GO TO 126                                                55  221
C G3/120  *SYSTEM ON LINE - SET 15 MIN FLAGS*          FROM E1/106       55  222
 120   FMSYF = 1                                                         55  223
       FMSCF = 1                                                         55  224
      SSFA=0                                                             55  225
C              SET CHANGE ON LINE                                        55  226
       FMTCH = 13                                                        55  227
C              SCHEDULE ROUTINE M                                        55  228
       MAST(MAST) = 1                                                    55  229
                GO TO 127                                                55  230
C                                                                        55  231
C G4/125  STAND-BY FOR TRAFFIC CONTROL SYSTEM          FROM E1/106       55  232
C              SET CHANGE FOR STAND-BY                                   55  233
 125   FMTCH=1                                                           55  234
C   CLEAR HOLD SPLIT AND OFFSET FLAGS                                    55  235
      DO 1251 I=1,NMSCT                                                  55  236
      ISECSB(I)=125                                                      55  237
      HLDSPL(I)=0                                                        55  238
      HLDOFF(I)=0                                                        55  239
 1251 CONTINUE                                                           55  240
      ITRDLY=0                                                           55  241
      ISYSTB=125                                                         55  242
C                SET FOR G5 ENTRY                                        55  243
       MODE = 4                                                          55  244
 126   CALL MSUB                                                         55  245
C                                                                        55  246
C  G6/127 SET TIME OF MODE CHANGE = TIME FOR ALL SECTIONS                55  247
C                                                                        55  248
 127   DO 128 I = 1,NMSCT                                               55  249
         TIMCH(I) = ITIME                                                55  250
 128   CONTINUE                                                          55  251
C    SET WAIT COUNT                                                      55  252
                GO TO 136                                                55  253
C G5/130  RECORD HISTORY ON FOR TRAFFIC CONTROL SYSTEM  FROM E1/106      55  254
C                                                                        55  255
  130  HRF   =1                                                          55  256
       FMTCH =5                                                          55  257
                GO TO 136                                                55  258
C G6/135  RECORD HISTORY OFF                            FROM E1/106      55  259
 135   HRF =0                                                            55  260
       FMTCH =6                                                          55  261
C G11/136 ALL TRAFFIC CONTROL SYSTEM REQUESTS JOIN HERE                  55  262
  136  FMTTY =1                                                          55  263
       FMTNU =0                                                          55  264
                GO TO 1070                                               55  265
C                                                                        55  266
C E2/140  TRAFFIC CONTROL SECTION REQUESTS              FROM B1/102      55  267
C            MBIT(1)= CONVERTED 2 DIGIT NUMBER FROM KBRD 3 OF CPXIN      55  268
C            FIRST START FLAG MUST BE SET AND HAVE VALID SECTION NO.     55  269
C                                                                        55  270
 140   IF (FSTFL.EQ.0) GO TO 1080                                        55  271
       SN=MBIT(1)                                                        55  272
       IF (SN.GT.NMSCT) GO TO 1060                                       55  273
C                                                                        55  274
C      4 TRAFFIC CONTROL SECTION CHOICES GO TO H1,H4                     55  275
C                                                                        55  276
C               TRAFFIC RESPONSIVE TO H1                                 55  277
       IF (MBIT(8).EQ.0) GO TO 145                                       55  278
C              TIME OF DAY TO H2                                         55  279
       IF (MBIT(9).EQ.0)  GO TO 147                                      55  280
C              MANUAL PATTERN TO H3                                      55  281
       IF (MBIT(16).EQ.0) GO TO 149                                      55  282
C STANDBY TO H4                                                          55  283
 141  IF(MBIT(11) .EQ.0)GOTO 150                                         55  284
C                        ERROR IF NO SELECTION                           55  285
                         GO TO 1080                                      55  286
C H1/145  TRAFFIC RESPONSIVE FOR TRAFFIC CONTROL SECTION  FROM E2/140    55  287
C                        WAIT IF 15 MIN FLAG ON                          55  288
 145   IF(FMSCF.NE.0) GO TO 1050                                         55  289
C ****   2-SC CHANGE                                                     55  290
      IF(LEVLSA.NE.0) GO TO 1050                                         55  291
      IF(ISECSB(SN).GT.0) GO TO 1050                                     55  292
C ********                                                               55  293
       FMTCH = 4                                                         55  294
C              SET FOR H1 ENTRY                                          55  295
       MODE = 5                                                          55  296
       CALL MSUB                                                         55  297
      GO TO 151                                                          55  298
C                                                                        55  299
C H2/147  TIME OF DAY FOR TRAFFIC CONTROL SECTION       FROM E2/140      55  300
C                  WAIT IF 15 MIN FLAG ON                                55  301
 147   IF (FMSCF.NE.0) GO TO 1050                                        55  302
C ****   2-SC CHANGE                                                     55  303
      IF(LEVLSA.NE.0) GO TO 1050                                         55  304
      IF(ISECSB(SN).GT.0) GO TO 1050                                     55  305
C ********                                                               55  306
       FMTCH = 3                                                         55  307
```

```
C               SET UP FOR M2 ENTRY                                          55  308
      MCODE = 6                                                              55  309
      CALL MSUB                                                              55  310
C               GO TO M20                                                    55  311
C               GO TO 151                                                    55  312
C                                                                            55  313
C M3/149  MANUAL PATTERN FOR TRAFFIC CONTROL SECTION        FROM E2/140      55  314
C               SET UP FOR M3 ENTRY,                                         55  315
 149  MCODE = 7                                                              55  316
      CALL MSUB                                                              55  317
C               TEST FOR ERROR RETURN FROM MSUB                              55  318
      IF (MTEST.NE.0) GO TO 1080                                             55  319
C               WAIT IF 15 MIN FLAG ON                                       55  320
      IF (FMSCF.NE.0) GO TO 1050                                             55  321
C ****   2-GC CHANGE                                                         55  322
     IF(LEVLSA.NE.0) GO TO 1050                                              55  323
     IF(ISECSB(SN).GT.0) GO TO 1050                                          55  324
C ********                                                                   55  325
C M20/151                                                                    55  326
 151  FMSCF= 1                                                               55  327
      SSFW = 1                                                               55  328
      JJ = SN+1                                                              55  329
C               SCHEDULE ROUTINE A AND GO TO M1                              55  330
      IF (MTEST.NE.0) GO TO 1080                                             55  331
      MAST(MMAST) = 1                                                        55  332
               GO TO 155                                                     55  333
C                                                                            55  334
C M4/153 STANDBY FOR TRAFFIC CONTROL SECTION                FROM E2/140      55  335
C                                                                            55  336
 153  FMTCH = 1                                                              55  337
     ITRDLY=0                                                                55  338
C               SET UP FOR M4 ENTRY                                          55  339
      MCODE = 8                                                              55  340
      CALL MSUB                                                              55  341
     ISYSTB=125                                                              55  342
     ISECSB(SN)=125                                                          55  343
C M10/155       ALL TRAFFIC CONTROL SECTION REQUESTS JOIN HERE               55  344
 155            FMTTY = 2                                                    55  345
                FMTNU = SN                                                   55  346
              TIMCM(SN) = ITIME                                              55  347
                                  GO TO 1070                                 55  348
C                                                                            55  349
C E3/160 *CONTROLLER REQUESTS FOR TRAFFIC CONTROL*          FROM A1/102      55  350
C             MBIT(1)= CONVERTED 4 DIGIT NUMBER FROM  WORK 3 OF CPNIN        55  351
C                                                                            55  352
  160  CN = MBIT(1)                                                          55  353
      IF (CN.GT.NMCTL) GO TO 1080                                            55  354
      FMTTY = 3                                                              55  355
      FMTNU = CN                                                             55  356
C  SIX CHOICES FOR TRAFFIC CONTROL, CONTROLLER GO TO I1-I6                   55  357
C                                 FAILURE REPAIR TO I4                       55  358
      IF (MBIT(15).EQ.0) GO TO 164                                           55  359
C             FIRST START FLAG SET                                           55  360
      IF (FSTFL.EQ.0) GO TO  1080                                            55  361
C                                 ON LINE TO I1                              55  362
      IF (MBIT(10).EQ.0) GO TO 162                                           55  363
C                                 STANDBY TO I2                              55  364
      IF (MBIT(11).EQ.0) GO TO 164                                           55  365
C                                 FAILURE ACKNOWLEDGE TO I3                  55  366
      IF (MBIT(13).EQ.0) GO TO 166                                           55  367
C                                 A-PHASE GREEN TO I5                        55  368
      IF (MBIT(16).EQ.1) GO TO 170                                           55  369
C                                 OFF-SET TO I6                              55  370
      IF (MBIT(16).EQ.2) GO TO 172                                           55  371
C                                 ERROR IF NO SELECTION                      55  372
                        GO TO  1080                                          55  373
C                                                                            55  374
C I1/162                  *ON LINE SELECTION*               FROM E3/160      55  375
 162  MCODE = 9                                                              55  376
      CALL MSUB                                                              55  377
C     ERROR IF CONTROLLER OR ITS SECTION IN STANDBY OR HALF FLAG OFF         55  378
      IF (MTEST.NE.0) GO TO 1080                                             55  379
C             SET CHANGE ON LINE AND GO TO UPDATE CHANGE TABLE (XTO)         55  380
      FMTCH = 13                                                             55  381
                        GO TO 1070                                           55  382
C                                                                            55  383
C I2/164                    *STAND-BY SELECTION*            FROM E3/160      55  384
 164  MCODE = 10                                                             55  385
      CALL MSUB                                                              55  386
C             SET CHANGE FOR STANDBY AND GO TO UPDATE CHANGE TABLE           55  387
      FMTCH = 1                                                              55  388
                        GO TO 1070                                           55  389
C                                                                            55  390
C I3/166                    *FAILURE ACKNOWLEDGE SELECTION*   FROM E3/160    55  391
 166  FMTCH = 11                                                             55  392
C     UPDATE FAILURE TABLE AND CHECK ERROR RETURN                            55  393
      CALL MFMT                                                              55  394
      IF (FLRFL.NE.0) GO TO 1080                                             55  395
                        GO TO 1070                                           55  396
C                                                                            55  397
C I4/168                  *FAILURE REPAIR SELECTION*        FROM E3/160      55  398
C     UPDATE FAILURE TABLE AND CHECK ERROR RETURN                            55  399
 168  FMTCH = 12                                                             55  400
      CALL MFMT                                                              55  401
      IF (FLRFL.NE.0) GO TO 1080                                             55  402
C             RESET CONTROLLER MALFUNCTION FLAG                              55  403
      MCODE = 11                                                             55  404
      CALL MSUB                                                              55  405
                        GO TO 1070                                           55  406
C                                                                            55  407
C I5/170            *A-PHASE GREEN SELECTION*               FROM E3/160      55  408
C                                                                            55  409
 170  IF (FMSCF.NE. 0) GO TO 1050                                            55  410
C ****   2-GC CHANGE                                                         55  411
     IF(LEVLSA.NE.0) GO TO 1050                                              55  412
C ********                                                                   55  413
      MCODE = 12                                                             55  414
```

```
      CALL MSUB                                                          55  415
C                                                                        55  416
C     TEST FOR ERROR AND WAIT CONDITIONS                                 55  417
      IF(MTEST)1080,171,1050                                             55  418
 171  FMTCH=7                                                            55  419
      ICN=MBIT(1)                                                        55  420
      CALL GETBY(CYCLC,ICN,IP)                                           55  421
      ICY=KCL(IP+1)                                                      55  422
      CALL GETBY(SSSS,4*ICN+3,ISUM)                                      55  423
      ISPL=(IGATEM*1000)/(ICY-ISUM)                                      55  424
      CALL PKHW(SPLIT,2*ICN+1,ISPL)                                      55  425
      CALL PTBI(MLDSPL,ICN,1,0)                                          55  426
                        GO TO 1070                                       55  427
C                                                                        55  428
C 16/172              *OFF-SET SELECTION*                  FROM E3/160   55  429
 172  IF (FNSCF.NE.C) GO TO 1050                                         55  430
      MCODE = 13                                                         55  431
      CALL MSUB                                                          55  432
C             TEST FOR ERROR AND WAIT CONDITIONS                         55  433
      IF (MTEST) 1080,173,1050                                           55  434
 173  FMTCH = 8                                                          55  435
                        GO TO 1070                                       55  436
C                                                                        55  437
C E4/175       *DETECTOR REQUESTS FOR TRAFFIC CONTROL*    FROM B1/102    55  438
C              FOUR DETECTOR REQUESTS GO TO J1-J4                        55  439
C                                                                        55  440
 175  IF(MBIT(1).GT.NMVED) GO TO 1080                                    55  441
      FMTTY = 4                                                          55  442
      FMTNO = MBIT(1)                                                    55  443
C                             ON LINE TO J1                              55  444
      IF (MBIT(10).EQ.0) GO TO 176                                       55  445
C                             STANDBY TO J2                              55  446
      IF (MBIT(11).EQ.0) GO TO 178                                       55  447
C                             FAILURE REPAIR TO J4                       55  448
      IF (MBIT(15).EQ.0) GO TO 182                                       55  449
C                             FAILURE ACKNOWLEDGE TO J3                  55  450
      IF (MBIT(13).EQ.0) GO TO 180                                       55  451
C                             NO SELECTION ERROR                         55  452
                        GO TO 1080                                       55  453
C J1/176       *DETECTOR ON LINE FOR TRAFFIC CONTROL*     FROM E4/175    55  454
C                                                                        55  455
 176  MCODE = 14                                                         55  456
      CALL MSUB                                                          55  457
C             TEST ERROR CONDITION.                                      55  458
C             REQUEST VALID ONLY IF DETECTOR AND COMM. FLAGS GOTM OFF    55  459
      IF (MTEST.NE.C) GO TO 1080                                         55  460
C             SET CHANGE ON LINE AND GO TO UPDATE CHANGE TABLE           55  461
      FMTCH = 19                                                         55  462
                        GO TO 1070                                       55  463
C                                                                        55  464
C J2/178              * DETECTOR ON STANDBY*                FROM E4/175  55  465
 178  FMTCH = 1                                                          55  466
      MCODE = 15                                                         55  467
      CALL MSUB                                                          55  468
                        GO TO 1070                                       55  469
C                                                                        55  470
C J3/180              * FAILURE ACKNOWLEDGE FOR DETECTOR*  FROM E4/175  55  471
C             VALID ONLY IF FIRST START FLAG IS SET                      55  472
 180  IF (FSTFL.EQ.C) GO TO 1080                                         55  473
      FMTCH = 11                                                         55  474
C             UPDATE FAILURE TABLE AND CHECK ERROR RETURN                55  475
      CALL KFMT                                                          55  476
      IF (FLRFL.NE.C) GO TO 1080                                         55  477
                        GO TO 1070                                       55  478
C                                                                        55  479
C J4/182              *FAILURE REPAIR*                     FROM E4/175   55  480
 182  FMTCH = 12                                                         55  481
C             UPDATE FAILURE TABLE AND CHECK ERROR RETURN                55  482
      CALL KFMT                                                          55  483
      IF (FLRFL.NE.C) GO TO 1080                                         55  484
      MCODE = 16                                                         55  485
      CALL MSUB                                                          55  486
                        GO TO 1070                                       55  487
C E5/185       **TRAFFIC CONTROL COMMUNICATIONS REQUESTS**  FROM B1/102  55  488
C             ERROR IF DETECTOR NUMBER GT NUMBER OF DETECTORS            55  489
 185  IF (MBIT(1).GT.NMVED) GO TO 1080                                   55  490
        FMTTY = 5                                                        55  491
        FMTNO = MBIT(1)                                                  55  492
C             TWO COMMUNICATIONS REQUESTS GO TO K1 AND K2                55  493
C                             FAILURE ACKNOWLEDGE TO K1                  55  494
      IF (MBIT(13).EQ.0) GO TO 187                                       55  495
C                             FAILURE REPAIR TO K2                       55  496
      IF (MBIT(15).EQ.0) GO TO 189                                       55  497
C                             NO SELECTION ERROR                         55  498
                              GO TO 1080                                 55  499
C K1/187  *FAILURE ACKNOWLEDGE-COMM. TRAFFIC CONTROL*      FROM E5/185   55  500
C             REQUEST VALID ONLY IF FIRST START FLAG IS SET              55  501
 187  IF (FSTFL.EQ.C) GO TO 1080                                         55  502
        FMTCH = 11                                                       55  503
C             UPDATE FAILURE TABLE AND CHECK ERROR RETURN                55  504
      CALL KFMT                                                          55  505
        IF (FLRFL.NE.0) GO TO 1080                                       55  506
                        GO TO 1070                                       55  507
C K2/189  *FAILURE REPAIR-COMM. TRAFFIC CONTROL*           FROM E5/185   55  508
 189  FMTCH = 12                                                         55  509
C             UPDATE FAILURE TABLE AND CHECK ERROR RETURN                55  510
      CALL KFMT                                                          55  511
      IF (FLRFL.NE.C) GO TO 1080                                         55  512
C             CLEAR COMMUNICATIONS ON AND FAILURE FLAG                   55  513
      MCODE = 17                                                         55  514
      CALL MSUB                                                          55  515
                        GO TO 1070                                       55  516
C B2/200  **CIC SELECTED WITH SYSTEM CONTROL ENTER**       FROM A3/101   55  517
C                                                                        55  518
C               THREE CIC CHOICES GO TO F1, F2, AND F3                   55  519
C                             SYSTEM TO F1                               55  520
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 200   IF (MBIT(3).EQ.0) GO TO 202                                          55  521
C                                  SECTION TO F2                           55  522
       IF (MBIT(4).EQ.0) GO TO 210                                          55  523
C                                  CONTROLLER TO F3                        55  524
       IF (MBIT(5).EQ.0) GO TO 220                                          55  525
C                                  NO SELECTION ERROR                      55  526
                          GO TO 1080                                        55  527
C F1/202 **CIC SYSTEM'S TWO CHOICES GO TO L1 AND L2          FROM B2/190      55  528
C                                                                           55  529
C                                  ACTIVATE TO L1                           55  530
 202   IF (MBIT(10).EQ.0) GO TO 204                                         55  531
C                                  RELEASE TO L2                           55  532
       IF (MBIT(11).EQ.0) GO TO 206                                         55  533
C                                  NO SELECTION ERROR                      55  534
                                   GO TO 1080                               55  535
C L1/204              * ACTIVATE CIC SYSTEM SELECTION*       FROM F1/202    55  536
C              SET CIC SELECTED FLAGS FOR ALL CIC CONTROLLERS IN SYSTEM     55  537
 204   MCODE = 18                                                           55  538
       CALL MSUB                                                            55  539
       FMTCH = 9                                                            55  540
              GO TO 207                                                     55  541
C L2/206              * RELEASE, CIC SYSTEM SELECTION*       FROM F1/202    55  542
C             CLEAR CIC SELECTED FLAGS FOR ALL CIC CONTROLLERS IN SYSTEM    55  543
 206   MCODE = 19                                                           55  544
       CALL MSUB                                                            55  545
       FMTCH = 10                                                           55  546
 207   FMTTY = 1                                                            55  547
       FMTNO = 0                                                            55  548
C             GO TO UPDATE CHANGE TABLE AND EXIT                            55  549
                                   GO TO 1070                               55  550
C F2/210                *CIC SECTION REQUEST*                 FROM B2/200    55  551
C             ERROR IF SECTION NUMBER GREATER THAN NUMBER OF SECTIONS       55  552
 210   IF (MBIT(1).GT.NMSCT) GO TO 1080                                     55  553
       FMTNO = MBIT(1)                                                      55  554
       FMTTY = 2                                                            55  555
C             CIC SECTION'S TWO CHOICES GO TO M1 AND M2                     55  556
C                                  ACTIVATE TO M1                           55  557
       IF (MBIT(10).EQ.0) GO TO 212                                         55  558
C                                  RELEASE* TO M2                          55  559
       IF (MBIT(11).EQ.0) GO TO 214                                         55  560
C                                  NO SELECTION ERROR                      55  561
                          GO TO 1080                                        55  562
C M1/212               *ACTIVATE CIC SECTION*                 FROM F2/210    55  563
C                                                                           55  564
 212   FMTCH = 9                                                            55  565
C       SET CIC SELECTED FLAGS FOR ALL CIC CONTROLLERS IN SECTION SN        55  566
       MCODE = 20                                                           55  567
              GO TO 215                                                     55  568
C M2/214              * RELEASE CIC SECTION REQUEST *       FROM F2/210    55  569
C                                                                           55  570
 214   FMTCH = 10                                                           55  571
C       CLEAR CIC SELECTED FLAGS FOR ALL CIC CONTROLLERS IN SECTION SN      55  572
       MCODE = 21                                                           55  573
 215   CALL MSUB                                                            55  574
                                   GO TO 1070                               55  575
C F3/220                * CIC CONTROLLER *                    FROM B2/200    55  576
C             ERROR IF CONTROLLER NUMBER IS GT NUMBER OF CONTROLLERS        55  577
 220   IF (MBIT(1).GT.NMCTL) GO TO 1080                                     55  578
       FMTNO = MBIT(1)                                                      55  579
       FMTTY = 3                                                            55  580
C             TWO CIC CONTROLLER REQUESTS GO TO N1 AND N2                   55  581
C                                  ACTIVATE TO N1                           55  582
       IF (MBIT(10).EQ.0) GO TO 222                                         55  583
C                                  RELEASE TO N2                           55  584
       IF (MBIT(11).EQ.0) GO TO 224                                         55  585
C                                  NO SELECTION ERROR                      55  586
                          GO TO 1080                                        55  587
C N1/222              *ACTIVATE CIC CONTROLLER REQUEST*      FROM F3/220    55  588
C                                                                           55  589
 222    FMTCH = 9                                                           55  590
C      SET CIC SELECTED FLAG FOR CIC CONTROLLER CN                          55  591
       MCODE = 22                                                           55  592
 223   CALL MSUB                                                            55  593
C             ERROR IF CONTROLLER CN IS NOT A CIC CONTROLLER                55  594
       IF (MTEST.NE.0) GO TO 1080                                           55  595
C                                                                           55  596
                                   GO TO 1070                               55  597
C N2/224 FROM F3/220  *RELEASE CIC CONTROLLER REQUEST*      FROM F3/220    55  598
C                                                                           55  599
 224   FMTCH = 10                                                           55  600
C         CLEAR CIC SELECTED FLAG FOR CIC CONTROLLER CN                     55  601
       MCODE = 23                                                           55  602
              GO TO 223                                                     55  603
C                                                                           55  604
C                                                                           55  605
C C1/300              ***MAP CONTROL ENTER SELECTED**          FROM A       55  606
C                     RETURN FROM MSUB WITH                                 55  607
C                     MBIT(5)=MBIT(15)=                                     55  608
C         UNPACKED BITS 5 = 15 OF CPWIN WORD 1 AND MAP READY TURNED ON      55  609
C                                                                           55  610
C                     A=PHASE GREEN                                         55  611
 300   IF (MBIT(12).NE.0) GO TO 301                                         55  612
       CNDIS = 0                                                            55  613
       GO TO 302                                                            55  614
C             CONTROLLER DISPLAY OFF REQUEST                                55  615
 301   IF (MBIT(15).EQ.0) CNDIS = 1                                         55  616
C             SURVEILLANCE DISPLAY OFF REQUEST                              55  617
 302   IF (MBIT(11).EQ.0) SRDIS = 0                                         55  618
C             TRAFFIC CONTROL TO C2                                         55  619
       IF (MBIT(5).EQ.0) GO TO 306                                          55  620
C             CIC REQUEST                                                   55  621
       IF (MBIT(0).EQ.0) GO TO 304                                          55  622
C             NO SELECTION TO C14 TO SCHEDULE J AND EXIT                    55  623
                          GO TO 1095                                        55  624
C      CIC CONTROLLER DISPLAY REQUEST                                       55  625
C                     STATUS                                                55  626
```

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304     IF (MBIT(13)•EQ•0) CNDIS = 4                                    55  627
C               GO TO SCHEDULE J AND EXIT                               55  628
                          GO TO 1095                                    55  629
C C2/306 FROM C1/302                                                    55  630
C              •TRAFFIC CONTROL MAP REQUEST•                            55  631
C                EQUIPMENT FAILED                                       55  632
 306    IF (MBIT(10)•EQ•0) SROIS = 1                                    55  633
C C10           STATUS                                                  55  634
        IF (MBIT(13)•NE•0) GO TO 308                                    55  635
               CNDIS = 2                                                55  636
                             GO TO 310                                  55  637
C              FAILED                                                   55  638
  308   IF (MBIT(14)•EQ•0) CNDIS = 3                                    55  639
C              FLOW DATA                                                55  640
 310    IF (MBIT(6)•NE•0)  GO TO 1095                                   55  641
C C4                                                                    55  642
        MCODE = 24                                                      55  643
        CALL MSUB                                                       55  644
        IF (MTEST•NE•0) GO TO 1095                                      55  645
        SNDIS = 3                                                       55  646
                             GO TO 1095                                 55  647
C                                                                       55  648
C               STATUS DISPLAY ENTER                                    55  649
C                  RETURN FROM MSUB WITH DISPLAY READY ON               55  650
C               CPMIN BITS (8) THRU (15) OF WORD 2 ARE UNPACKED AND IN  55  651
C                     MBIT (8) THRU (15)                                55  652
C                                                                       55  653
C                                  GET CRT INDEX                        55  654
 400    IF (MBIT(8)•NE•0) GO TO 401                                     55  655
        I = 1                                                           55  656
        GO TO 415                                                       55  657
C               DISPLAY ERROR, NO SELECTION                             55  658
 401    IF (MBIT(9)•NE•0) GO TO 1060                                    55  659
        I = 2                                                           55  660
 415    IF (MBIT(15)•NE•0) GO TO 402                                    55  661
C               TRAFFIC SYSTEM INTERSECTION                             55  662
C               MBIT( 7) = CTLSY(NO.) BIT                               55  663
C               MBIT(16) = INTERSECTION/CONTROLLER NUMBER               55  664
C               TEST ERROR CONDITION. CONTROLLER NUMBER NOT VALID       55  665
        IF (MBIT(7)•EQ•0) GO TO 1060                                    55  666
        IF (MBIT(16)•GT•NMCTL) GO TO 1060                               55  667
C            VALID NUMBER                                               55  668
        ITRNM(I) = MBIT(16)                                             55  669
C            SET J FOR DISPLAY CODE                                     55  670
        J = 5                                                           55  671
          GO TO 404                                                     55  672
C D2/402                LOCATE INDEX FOR DISPLAY CODE          FROM A/400 55  673
 402    DO 403 J= 1,4                                                   55  674
          K = J + 10                                                    55  675
          IF (MBIT(K)•EQ•0) GO TO 404                                   55  676
 403    CONTINUE                                                        55  677
C               DISPLAY ERROR, NO SELECTION                             55  678
                             GO TO 1060                                 55  679
```

```
C               SET DISPLAY CODE                                        55  680
 404     ICRT(I) = J                                                    55  681
C D11    TEST IF LAST REQUEST CAME MORE THAN 4 SECONDS AGO              55  682
        L = RTC - CRTCL                                                 55  683
C                 6 SECONDS SCALED HS = 192                             55  684
C     RESCHEDULE ROUTINE K USING COUNT DOWN CLOCK                       55  685
      KCNT=1                                                            55  686
      IF(L•LT•192) KCNT=6•L/32                                          55  687
C    RESET REQUEST CLOCK                                                55  688
   •    CRTCL = RTC                                                     55  689
C               GOTO=BY                                                 55  690
                GO TO 1000                                              55  691
C                                                                       55  692
C               EXITS  FROM ROUTINE M                                   55  693
C                                                                       55  694
C  Y/1050 TURN ON WAIT                                                  55  695
 1050 MCODE = 26                                                        55  696
      GO TO 1081                                                        55  697
C  Z/1060 DISPLAY ERROR CONDITION                                       55  698
 1060 MCODE = 27                                                        55  699
      GO TO 1081                                                        55  700
C  XT0/1070 UPDATE CHANGE TABLE                                        55  701
 1070 CALL MFMT                                                         55  702
      GO TO 1000                                                        55  703
C  C1A/1095 ALL MAP CONTROLS = SCHEDULE J                               55  704
 1095 MAST(JMAST) = 1                                                   55  705
      GO TO 1000                                                        55  706
C  X/1080 SYSTEM ERROR CONDITION                                        55  707
 1080 MCODE = 28                                                        55  708
 1081 CALL MSUB                                                         55  709
 1000 RETURN                                                            55  710
        END                                                             55  711
```

2.6.52 SUBROUTINE HFMT

```
ROUTINE:  HFMT

C  *   HFMT                                                                  31    1
       SUBROUTINE HFMT                                                       31    2
       INTEGER CTABL                                                         31    3
       INTEGER FMTTY,FMTNU,FMTCH,TIME                                        31    4
       INTEGER HMAST                                                         31    5
       INTEGER  CTYPE,TMAN,TCHAN,TEXIN                                       31    6
       DIMENSION CTYPE(5),ICHAN(13),INUM(4),ITYPE(5),TCHAN(13),TIME(4)       31    7
      1          ,TMAN(13)                                                  31    8
       DIMENSION  CTABL(220)                                                 31    9
       COMMON /BLKB /  FMC          ,  FMARK        ,  MAST(9)      ,        31   10
      * MMAST        ,  JMAST        ,  KMAST        ,  EMAST        ,        31   11
      * HMAST        ,  XMAST        ,  QMAST        ,  IMAST        ,        31   12
      * SPACE        ,  MPBKY        ,  QCNT                                 31   13
       COMMON /HARGS/  FMTTY        ,  FMTNU        ,  FMTCH        ,        31   14
      * ITRNM(2)                                                             31   15
       COMMON/HSUB2/BIND,CTABL,IBL                                           31   16
       EQUIVALENCE(TCHAN(2),TMAN(1))                                         31   17
       EQUIVALENCE(ICHAN(1),TCHAN(1))                                        31   18
       EQUIVALENCE(ITYPE(1),CTYPE(1))                                        31   19
       EQUIVALENCE(TEXIN,TMAN(13))                                           31   20
       DATA CTYPE/'SYS ','SEC ','CONT','DET ','DCHY'/                        31   21
       DATA IBL,IBLNK,TCHAN(1)/0,'    ','STRY'/                              31   22
       DATA TMAN(1),TMAN(2),TMAN(3),TMAN(4),TMAN(5),TMAN(6),TMAN(7),         31   23
      1     TMAN(8),TMAN(9),TMAN(10),TMAN(11),TMAN(12)                       31   24
      2/'MAN ','TBD ','TRSP','MBN ','MBFF','SPLT','BFST','CCBN','CCBF','F   31   25
      3ACK','REPR','BNLN'/                                                   31   26
       DATA TEXIN/'EXIN'/                                                    31   27
C      SET INDEX                                                             31   28
       I = 5*IBL                                                             31   29
C      GET TIME OF DAY                                                       31   30
       CALL TIMEM(TIME)                                                      31   31
C      STORE TIME IN TABLE                                                   31   32
       CTABL(I+1) = TIME(4)                                                  31   33
C      PICK UP TYPE CODE                                                     31   34
       CTABL(I+2) = ITYPE(FMTTY)                                             31   35
C      PICK UP BINARY NUMBER                                                 31   36
C      GET LAST TWO BYTES OF BINARY NUMBER                                   31   37
       K = 0                                                                 31   38
       CALL HALF(FMTNU,2,ITMP)                                               31   39
       CALL PTHLF(K,2,ITMP)                                                  31   40
C      CONVERT BINARY NUMBER TO EBCDIC                                       31   41
       CALL EISRT(K,INUM)                                                    31   42
C      STORE NUMBER INTO TABLE                                               31   43
       CTABL(I+3) = INUM(2)                                                  31   44
C      PICK UP CHANGE CODE                                                   31   45
       K = 0                                                                 31   46
       CALL HALF(FMTCH,2,ITMP)                                               31   47
       CALL PTHLF(K,2,ITMP)                                                  31   48
C      STORE CHANGE INTO TABLE                                               31   49
       CTABL(I+4) = ICHAN(K)                                                 31   50
C      GET PATTERN NUMBER IF CHANGE IS MANUAL PATTERN                        31   51
       IF(TMAN(1).EQ.TCHAN(K)) GO TO 20                                      31   52
C      GET EXTENSION IF CHANGE IS MANUAL EXTENSION                           31   53
       IF(TEXIN.EQ.TCHAN(K)) GO TO 30                                        31   54
       INUM(2) = IBLNK                                                       31   55
       GO TO 50                                                              31   56
   20  CONTINUE                                                              31   57
C      GET PATTERN NUMBER FROM UPPER HALF OF FMTCH                           31   58
       CALL HALF(FMTCH,1,ITMP)                                               31   59

       GO TO 40                                                              31   60
   30  CONTINUE                                                              31   61
C      GET PATTERN NUMBER FROM UPPER HALF OF FMTNU                           31   62
       CALL HALF(FMTNU,1,ITMP)                                               31   63
   40  CONTINUE                                                              31   64
C      CHANGE TO EMCDIC CODE                                                 31   65
       CALL EISRT(ITMP,INUM)                                                 31   66
   50  CONTINUE                                                              31   67
C      STORE IN TABLE                                                        31   68
       CTABL(I+5) = INUM(2)                                                  31   69
C      INCREMENT IBL(TO DO=ALSO CHECK MAX VALUE OF 44)                       31   70
       IBL = IBL + 1                                                         31   71
       IF(IBL.LT.44) GO TO 100                                               31   72
C      TABLE FULL, SET PRINT OUT FLAG                                        31   73
       MPBKY = MPBKY + 1                                                     31   74
       MAST(HMAST) = 1                                                       31   75
  100  CONTINUE                                                              31   76
       RETURN                                                                31   77
       END                                                                   31   78
```

2.6.53 SUBROUTINE KFMT

```
ROUTINE: KFMT
C   *   KFMT                                                                  41    1
      SUBROUTINE KFMT                                                         41    2
C                                                                             41    3
C        FAILURE ACKNOWLEDGE / FAILURE REPAIR ROUTINE                         41    4
C           CALLED FROM RTNM                                                  41    5
C                                                                             41    6
      INTEGER ALARM                                                           41    7
      INTEGER         FMTTY       , FMTNU       , FMTCM                       41    8
      INTEGER FLRFL,  FLTAB,  CRNOT,  CMSEC,  SECFC,  DWL  ,  SCDFC,          41    9
     *        FTBMD,  FTAB                                                     41   10
C                                                                             41   11
      COMMON /MARGS/  FMTTY       , FMTNU       , FMTCM       ,               41   12
     * ITRNM(2);                                                             41   13
      COMMON /BLK10/  CICSC(16)   , CICSY(8)    , CTLSC(16)   ,               41   14
     2 CTLSY(4),CMSEC(31),CNTZN(19),LNKCN(69),                                41   15
     * TIMCH(4)     , ZSI(32)                                                41   16
      COMMON /BLK13/  DWL(259)    , DWLP(17)    , EODC        ,               41   17
     1 FTAB, FTBMD, MOEIF(69)                                                 41   18
      COMMON /BLK15/  CMSET       , MBUFL       , IGPI        ,               41   19
     * MNUMF        , NBMCH       , NCW22       , NCWD2       ,               41   20
     * NCWRD        , NMANP       , NMCTL       , NMLNK       ,               41   21
     * NMSCT        , NMVED       , NPATB       , NPBA        ,               41   22
     * NRESP        , NSTM1       , TBSIZ       , TBYTE       ,               41   23
     * CS           , DS          , FS          , NS          ,               41   24
     * QS           , RS          , SS          , SCS                         41   25
      COMMON /BLK22/  CRTB1(512)  , CRTB2(512)  , CRTD1       ,               41   26
     * CRTD2        , CRTF1       , CRTF2       , FLRFL                       41   27
      COMMON /BLK25/ AMCC(138), CMMAL(17), CMTAB(258),                        41   28
     * DTTAB(258)   , DIS(17)     , DMALF(17)   , DMBDE       ,               41   29
     * FLTAB(800)   , HRF         , MBDES       , NAI         ,               41   30
     * NBFAL, SBAM(69), SECFC(4), SCDFC(4), VBL(138)                          41   31
      COMMON/BLK29/AGR(14),PIA(6),RCM(2),MSB(14),APBM1(14),CPNBU,CPNBT,       41   32
     * MARR(340)    , MMAP(2)     , JCNT        , KCNT        ,               41   33
     * MNC15        , MMSBF       , CLOCK       , MMINF       ,               41   34
     * MINCT        , TAB(3)      , NBNB(8)                                  41   35
      DATA ALARM/ 16/                                                         41   36
      IBYTE = NBMCH/8                                                         41   37
      FLRFL = 0                                                               41   38
      IF(NBFAL.EQ.0) GO TO 30                                                 41   39
      IF(NBFAL.LE.MNUMF) GO TO 10                                             41   40
      INDEX = 4*MNUMF-3                                                       41   41
      GO TO 20                                                                41   42
   10 CONTINUE                                                                41   43
      INDEX = 4*NBFAL-3                                                       41   44
   20 CONTINUE                                                                41   45
      LAST = INDEX                                                            41   46
C                                                                             41   47
C       *TEST IF REPAIR OR ACKNOWLEDGE                                        41   48
C                                                                             41   49
      IF(FMTCM.EQ.12) GO TO 60                                                41   50
      CALL SRCFT(INDEX,IRTN)                                                  41   51
C                                                                             41   52
C        BRANCH FOR NORMAL RETURN                                             41   53
C                                                                             41   54
      IF(IRTN.EQ.1) GO TO 40                                                  41   55
C                                                                             41   56
C        ERROR RETURN                                                         41   57
C                                                                             41   58
   30 CONTINUE                                                                41   59
```

```
      FLWFL = 1                                                          41   60
      RETURN                                                             41   61
   40 CONTINUE                                                           41   62
C                                                                        41   63
C        SET ACKNOWLEDGE = YES IN FAIL TABLE                             41   64
C                                                                        41   65
      IND = (INDEX-1)*4 + 1                                              41   66
      CALL PTBY(FLTAB,IND,1)                                             41   67
   50 CONTINUE                                                           41   68
C                                                                        41   69
C        TURN OFF ALARM                                                  41   70
C                                                                        41   71
      CALL PTBI(CPNBT,ALARM,0,0)                                         41   72
C                                                                        41   73
C        TURN OFF LIGHT                                                  41   74
C                                                                        41   75
      LIGHT = FMTTY + 7                                                  41   76
      CALL PTBI(CPNBT,LIGHT,0,0)                                         41   77
C                                                                        41   78
C        GO TO NORMAL RETURN                                             41   79
C                                                                        41   80
      GO TO 130                                                          41   81
C                                                                        41   82
C        FAILURE REPAIR                                                  41   83
C                                                                        41   84
   60 CONTINUE                                                           41   85
      CALL SRCFT(INDEX,IRTN)                                             41   86
      IF(IRTN.EQ.0) GO TO 30                                             41   87
      NOFAL = NOFAL - 1                                                  41   88
      IEQN = FMTNO                                                       41   89
C                                                                        41   90
C        IS THIS A CONTROLLER OR A COM/DET FAILURE                       41   91
C                                                                        41   92
      IF(FMTTY.NE.3) GO TO 90                                            41   93
      CALL GETBY(CNSEC,IEQN,ISECT)                                       41   94
      SECFC(ISECT) = SECFC(ISECT) - 1                                    41   95
      ISAVE = INDEX                                                      41   96
      GO TO 100                                                          41   97
C                                                                        41   98
C        PROCESS COM/DET FAILURE                                         41   99
C                                                                        41  100
   90 CONTINUE                                                           41  101
      CALL HALF(IDWL,IEQN,IDWL)                                          41  102
      CALL GETBY(LNKCN,IDWL+1,ILCON)                                     41  103
      CALL GETBY(CNSEC,ILCON+1,ICONS)                                    41  104
      SCDFC(ICONS) = SCDFC(ICONS)-1                                      41  105
      ISAVE = INDEX                                                      41  106
  100 CONTINUE                                                           41  107
      ISAVE = ISAVE + 4                                                  41  108
      IF(ISAVE.GT.LAST) GO TO 120                                        41  109
C                                                                        41  110
C        CLOSE UP GAPS IN FAIL TABLE                                     41  111
C                                                                        41  112
      INDX1 = (INDEX-1)*4 / IBYTE                                        41  113
      INDX2 = (ISAVE-1)*4 / IBYTE                                        41  114
      IEND = 16/IBYTE                                                    41  115
      DO 110 I=1,IEND                                                    41  116
      INDX1 = INDX1 + 1                                                  41  117
      INDX2 = INDX2 + 1                                                  41  118
      FLTAB(INDX1) = FLTAB(INDX2)                                        41  119
  110 CONTINUE                                                           41  120
      INDEX = INDEX + 4                                                  41  121


      GO TO 100                                                          41  122
  120 CONTINUE                                                           41  123
C                                                                        41  124
C        DECREMENT FAIL TABLE WORD INDEX AND BYTE INDEX                  41  125
C                                                                        41  126
      FTWRD = FTWRD - 4                                                  41  127
      FTAB = FTAB * 16                                                   41  128
      GO TO 50                                                           41  129
  130 CONTINUE                                                           41  130
C                                                                        41  131
C        NORMAL RETURN                                                   41  132
C                                                                        41  133
      DO 250 J=1,NOFAL                                                   41  134
      L=(J-1)*4+1                                                        41  135
      K=L+3                                                              41  136
  250 CONTINUE                                                           41  137
      RETURN                                                             41  138
      END                                                                41  139
```

2.6.54 SUBROUTINE MSUB

```
ROUTINE:  MSUB

          MSUB                                                    6    1
            DEF       MSUB                                      6    2
            REF       MSUB1                                     6    3
            REF       MSUB2                                     6    4
            REF       MARGS                                     6    5
            REF       AUTOF                                     6    6
            REF       AVMPAT                                    6    7
            REF       NAVMPAT                                   6    8
            REF       CICEF                                     6    9
            REF       CICSCT                                    6   10
            REF       CICSF                                     6   11
            REF       CICSYS                                    6   12
            REF       CMALF                                     6   13
            REF       CMMALF                                    6   14
            REF       CONSEC                                    6   15
            REF       CPANIN                                    6   16
            REF       CPANOUT                                   6   17
            REF       CTLSEC                                    6   18
            REF       CTLSYS                                    6   19
            REF       CYCLC                                     6   20
            REF       DIS                                       6   21
            REF       DMALF                                     6   22
            REF       DMODE                                     6   23
            REF       DPATNUM                                   6   24
          REF       ENTRYOFF                                    6   25
            REF       FMSECF                                    6   26
            REF       FMSYSF                                    6   27
            REF       FSETCF                                    6   28
            REF       GABBCABC                                  6   29
          REF       GATEM,GBTEM                                 6   30
            REF       GAWTEMP                                   6   31
            REF       GBWTEMP                                   6   32
            REF       GMINABC4                                  6   33
          REF       HLDOFF                                      6   34
            REF       HOLD                                      6   35
            REF       HSBUF                                     6   36
            REF       KCL                                       6   37
            REF       MASK                                      6   38
            REF       MCOF                                      6   39
            REF       MI                                        6   40
            REF       MODE$                                     6   41
            REF       NCWRD                                     6   42
            REF       NCWRD2                                    6   43
            REF       NMANPAT                                   6   44
            REF       NPATBYT                                   6   45
            REF       NRESPAT                                   6   46
            REF       NUMCTL                                    6   47
            REF       NUMSCT                                    6   48
          REF       OFFAP                                       6   49
            REF       PARCOD                                    6   50
            REF       RTC                                       6   51
            REF       SEMMSK                                    6   52
            REF       SHTFLG                                    6   53
            REF       SPLCHG                                    6   54
            REF       STEYD                                     6   55
            REF       SUMABCT                                   6   56
          REF       SUMCON                                      6   57
            REF       THRESH                                    6   58
            REF       TIMMCH                                    6   59


            REF       TRANSF                                    6   60
            REF       TSTART                                    6   61
            REF       WRKOFF                                    6   62
*                                                               6   63
R0        EQU       0                                         6   64
R1        EQU       1                                         6   65
R2        EQU       2                                         6   66
R3        EQU       3                                         6   67
R4        EQU       4                                         6   68
R5        EQU       5                                         6   69
R6        EQU       6                                         6   70
R7        EQU       7                                         6   71
R8        EQU       8                                         6   72
R9        EQU       9                                         6   73
R10       EQU       10                                        6   74
R11       EQU       11                                        6   75
R12       EQU       12                                        6   76
R13       EQU       13                                        6   77
R14       EQU       14                                        6   78
R15       EQU       15                                        6   79
CICSC     EQU       CICSCT                                    6   80
CICSY     EQU       CICSYS                                    6   81
CMMAL     EQU       CMMALF                                    6   82
CNSEC     EQU       CONSEC                                    6   83
CPNIN     EQU       CPANIN                                    6   84
CPNOT     EQU       CPANOUT                                   6   85
CTLSC     EQU       CTLSEC                                    6   86
CTLSY     EQU       CTLSYS                                    6   87
FMSCF     EQU       FMSECF                                    6   88
FMSYF     EQU       FMSYSF                                    6   89
FSTCF     EQU       FSETCF                                    6   90
GAABC     EQU       GABBCABC                                  6   91
GAWTP     EQU       GAWTEMP                                   6   92
GBWTP     EQU       GBWTEMP                                   6   93
GMABC     EQU       GMINABC4                                  6   94
```

```
MODES    EQU     MODE*                                                  6   95
NCWD2    EQU     NCWRD2                                                 6   96
NPATB    EQU     NPATBYT                                                6   97
NMSCT    EQU     NUMSCT                                                 6   98
NRESP    EQU     NRESPAT                                                6   99
SEMSK    EQU     SEMMSK                                                 6  100
SPLCH    EQU     SPLCHG                                                 6  101
SABCT    EQU     SUMABCT                                                6  102
THRSH    EQU     THRESH                                                 6  103
TIMCH    EQU     TIMMCH                                                 6  104
TRNSF    EQU     TRANSF                                                 6  105
TSTRT    EQU     TSTART                                                 6  106
WRKBF    EQU      WRKBFF                                                6  107
NMANP    EQU     NMANPAT                                                6  108
*                                                                       6  109
MBIT     EQU     MSUB1              MBIT(1)=MBIT(16)                    6  110
MCODE    EQU     MSUB1+16           SET BY RTNMM=SMB,S WHERE TB GB      6  111
MTEST    EQU     MSUB1+17           SET BY MSUB FOR TESTING BY M        6  112
MEXIT    EQU     MSUB1+18                                               6  113
IPRT     EQU     MSUB1+19                                               6  114
ITIME    EQU     MSUB1+20                                               6  115
MSER     EQU     MSUB1+21                                               6  116
*                                                                       6  117
FMTTY    EQU     MARGS+0                                                6  118
FMTNU    EQU     MARGS+1                                                6  119
FMTCHG   EQU     MARG3+2                                                6  120
TIMBUF   EQU     MSUB2                                                  6  121
         SPACE   2                                                      6  122
MTS      RES     2                                                      6  123
         PAGE                                                           6  124
*                                                                       6  125
*  PROC USED TO OBTAIN A BIT FROM THE CONTROL PANEL INPUT ARRAY         6  126
*                                                                       6  127
*  REFERENCED BY                                                        6  128
*         GBT     B,W  * B = BIT POSITION CONTAINING INPUT BIT         6  129
*                      *   = 0-31                                       6  130
*                      * W = CPNIN WORD NUMBER                          6  131
*                      *   = 1-4                                        6  132
*                  INPUT BIT IS PLACED IN REGISTER 12                   6  133
GBT      CNAME                                                          6  134
         PROC                                                           6  135
         L,R12   CPNIN+(2*AF(2)-2)   CPNIN IS INTERLEAVED               6  136
         AND,R12 MASK+AF(1)                                             6  137
         PEND                                                           6  138
*                                                                       6  139
*  PROC USED TO TURN ON CONTROL PANEL PULSE                             6  140
*                                                                       6  141
*  REFERENCED BY                                                        6  142
*         PBT     I    * I = BIT POSITION IN THE CONTROL PANEL         6  143
*                      *     OUTPUT WORD (CPNBT) OF PULSE               6  144
*                      *   = 0-5                                        6  145
*         USES REGISTER 7                                              6  146
PBT      CNAME                                                          6  147
         PROC                                                           6  148
         LI,R7   AF(1)                                                  6  149
         L,R7    MASK,R7                                                6  150
         STS,R7  CPNBT                                                  6  151
         PEND                                                           6  152
         TITLE   'MSUB-SUBROUTINE TO ROUTINE M'                         6  153
MSUB     RES               0                                            6  154
         LCI     0                                                      6  155
         STM,0   SREGS              SAVE REGISTERS                      6  156
*    CLEAR MSUB ERROR FLAG                                              6  157
         LI,R1   0                                                      6  158
         ST,R1   MSER                                                   6  159
         ST,R1   MTEST              CLEAR                               6  160
*                                                                       6  161
         L,R6    MCODE                                                  6  162
         BGEZ    CKV                GO TO CHECK VALUE                   6  163
*        TURN OFF ALL PANEL OUTPUT PULSES                               6  164
         L,R12   CPNBT                                                  6  165
         AND,R12 =X'03FFFFFF'       TURN OFF ALL PANEL OUTPUT PULSES    6  166
         ST,R12  CPNBT                                                  6  167
*        15 MINUTE REPORT FLAG                                          6  168
         GBT     10,2                                                   6  169
         ST,R12  IPRT                                                   6  170
*        PROCESS ENTER BITS IN WORD 1 OF CPNIN                          6  171
         GBT     0,1                                                    6  172
         BEZ     A1                 SYSTEM CONTROL ENTER TO A1          6  173
         GBT     1,1                                                    6  174
         BEZ     C1                 MAP CONTROL ENTER TO C1             6  175
         GBT     2,1                                                    6  176
         BEZ     D1                 STATUS DISPLAY TO D1                6  177
*        NO SELECTION, SET MEXIT                                        6  178
         LI,R6   4                                                      6  179
         ST,R6   MEXIT              MEXIT = 4 FOR NO SELECTION          6  180
         B       REST                                                   6  181
*   SYSTEM CONTROL ENTER SELECTION.                                     6  182
A1       RES     0                                                      6  183
         LI,R7   1                                                      6  184
         ST,R7   MEXIT              SET MEXIT TO 1 FOR SYSTEM C         6  185
         PBT     0                  TURN ON SYSTEM READY                6  186
         L,R12   SHTFLG             SYSTEM SHUT DOWN FLAG               6  187
         BNEZ    REST               RESTORE REGISTERS AND EXIT          6  188
         GBT     1,2                SYSTEM SHUT-DOWN                    6  189
         BNEZ    A3                                                     6  190
         ST,R12  MTEST              MTEST =(1,2)= SYSTEM SHUTDOWN       6  191
         B       REST               RESTORE REGISTERS AND EXIT          6  192
A3       RES     0                                                      6  193
         ST,R12  MTEST              MTEST =(1,2)= SYSTEM SHUTDOWN       6  194
         GBT     0,3                TRAFFIC CONTROL                     6  195
         BNEZ    *+3                                                    6  196
         ST,R12  MBIT+1             MBIT(2) = 0 FOR TRAFFIC CONTROL     6  197
         B       B20                GO TO UNPACK DATA                   6  198
         GBT     1,3                CIC                                 6  199
         BEZ     B2                                                     6  200
```

```
                LI,R12   =1                                              6  201
                ST,R12   MBIT+1          MBIT(2) ==1 FOR NO SELECTION    6  202
                B        REST            RESTORE REGISTERS AND EXIT      6  203
B2              LI,R12   1                                               6  204
                ST,R12   MBIT+1          MBIT(2) ==1 FOR CIC             6  205
*               UNPACK AND STORE IN MBIT ARRAY                           6  206
B20             LI,R7    3               INDEX FOR MASK                  6  207
                LW,R12   CPNIN+4         WORD 3 INTERLEAVED              6  208
                AND,R12  MASK,R7                                         6  209
                ST,R12   MBIT=1,R7       BIT(MASK+I)GOES TO MBIT(I)      6  210
                AI,R7    1                                               6  211
                CI,R7    15                                              6  212
                BLE      $-5                                             6  213
G10             RES      0                                               6  214
                BAL,R8    TIME           NEEDED BY SYSTEM AND SECTION REQ 6  215
                ST,R12   ITIME           TIME OF MODE CHANGE             6  216
*                                                                        6  217
                LW,R12   MBIT+2          SYSTEM                          6  218
                BEZ      REST            GO TO RESTORE REGS              6  219
*               NEED TO CONVERT 4 DIGITS                                 6  220
                LW,R12   CPNIN+4                                         6  221
                BAL,R8   CNV4            CONVERT                         6  222
                ST,R12   MBIT            MBIT(1) =CONVERTED 4 DIGITS     6  223
*               SET UP MBIT(16)                                          6  224
                GBT      0,4             MANUAL PATTERN                  6  225
                BNEZ     $+3                                             6  226
B21             ST,R12   MBIT+15         MBIT(16)=0 FOR MANUAL PATTERN   6  227
                B        REST            GO TO RESTORE REGISTERS         6  228
                GBT      1,4             A=PHASE GREEN                   6  229
                BNEZ     $+3                                             6  230
                LI,R12   1               MBIT(16)=1 FOR A=PHASE GREEN    6  231
                B        B21                                             6  232
                GBT      2,4             OFFSET                          6  233
                BNEZ     $+3             ERROR, NO SELECTION             6  234
                LI,R12   2               MBIT(16)= 2 FOR OFFSET          6  235
                B        B21                                             6  236
                LI,R12   3                                               6  237
                B        B21             MBIT(16)=3 FOR NO SELECTION     6  238
*                                                                        6  239
*               MAP CONTROL ENTER                                        6  240
C1              RES      0                                               6  241
                PBT      1               TURN ON MAP READY               6  242
                LI,R12   2                                               6  243
                ST,R12   MEXIT           MEXIT = 2 FOR MAP CONTROL ENTER 6  244
*               UNPACK AND MOVE DATA                                     6  245
                LI,R7    5               INDEX FOR MASK , I=5,15         6  246
                LW,R12   CPNIN           WORD 1                          6  247
                AND,R12  MASK,R7                                         6  248
                ST,R12   MBIT=1,R7                                       6  249
                AI,R7    1                                               6  250
                CI,R7    15                                              6  251
                BLE      $-5             BIT(MASK+I) GOES TO MBIT(I)     6  252
                B        REST                                            6  253
*                                                                        6  254
*               STATUS DISPLAY ENTER                                     6  255
*                                                                        6  256
D1              RES      0                                               6  257
                PBT      2               TURN ON DISPLAY READY           6  258
                LI,R12   3                                               6  259
                ST,R12   MEXIT           MEXIT = 3                       6  260
*                        UNPACK AND MOVE DATA                            6  261
                LI,R7    8                                               6  262
                LW,R12   CPNIN+2         INDEX FOR MASK, I=8,15          6  263
                AND,R12  MASK,R7                                         6  264
                ST,R12   MBIT=1,R7                                       6  265
    *           AI,R7    1                                               6  266
                CI,R7    15                                              6  267
                BLE      $-5             BIT(MASK+I) GOES TO MBIT(I)     6  268
                LW,R1    MBIT+14         15,2 TRAFFIC INTERSECTION BIT   6  269
                BNEZ     REST                                            6  270
*  15,2 ON, CONVERT NUMBER                                               6  271
                LW,R12   CPNIN+2                                         6  272
                BAL,R8   CNV3                                            6  273
                ST,R12   MBIT+15         MBIT(16)= INTER SECTION NUMBER  6  274
                LW,R13   R12             SET UP FOR BMG1                 6  275
                BAL,R8   BMG1                                            6  276
                LS,R13   CTLSY,6                                         6  277
                ST,R13   MBIT+6          SAVE IN MBIT(7)                 6  278
                B        REST                                            6  279
*                                                                        6  280
*                                                                        6  281
*                                                                        6  282
*               CHECK VALUE OF MCODE TO FIND WHERE TO GO                 6  283
CKV             RES      0                                               6  284
                LI,R6    1                                               6  285
                CA,R6    MCODE                                           6  286
                BE       ID=1,R6                                         6  287
                AI,R6    1                                               6  288
                CI,R6    28                                              6  289
                BLE      $-4                                             6  290
                B        DEBUG                                           6  291
                BE       REST                                            6  292
                PAGE                                                     6  293
G1              RES      0               TRAFFIC RESPONSIVE REQUEST      6  294
                LW,R12   =X'FFF00000'    SET MODE CHANGE DESIRED FLAGS   6  295
                ST,R12   MCDF            FOR ALL SECTIONS                6  296
*                                                                        6  297
                LI,R13   3               3 FOR TRAFFIC RESPONSIVE        6  298
G12             LW,R14   NMSCT                                           6  299
                LI,R6    0                                               6  300
                STB,R13  DMODE,R6        SET DESIRED MODE FLAG           6  301
                AI,R6    1               FOR ALL SECTIONS                6  302
                BOR,R14  $-2                                             6  303
                B        REST            GO TO RESTORE REGS              6  304
*                                                                        6  305
* SET MODE AND DESIRED MODE = STAND-BY FOR ALL SECTIONS                  6  306
G4              RES      0               STAND-BY REQUEST                6  307
```

```
          LW,R14    NMSCT                                          6  308
          LI,R6     0                                              6  309
          LI,R12    0                                              6  310
          STB,R12   M0DES,R6                                       6  311
          STB,R12   DM0DE,R6                                       6  312
          AI,R6     1                                              6  313
          BDR,R14   $-3                                            6  314
* SET STAND-BY DESIRED FLAGS AND RESET AUTO FLAGS FOR ALL CONTROLLERS 6  315
          LI,R14    NCNRD           COUNT                          6  316
          LI,R6     0                                              6  317
          LI,R11    0                                              6  318
          LW,R12    =X'FFFFFFFF'                                   6  319
          STW,R11   AUT0F,R6                                       6  320
          STW,R12   STBYD,R6                                       6  321
          AI,R6     2                                              6  322
          BDR,R14   $-3                                            6  323
          B         REST            GO TO RESTORE REGS             6  324
*2        RES       0               TIME OF DAY REQUEST            6  325
          LW,R12    =X'FFFDDDDD'                                   6  326
          STW,R12   MCDF            MCDF SET FOR ALL SECTIONS      6  327
          LI,R13    2               2 FOR TIME OF DAY              6  328
          B         G12             JOIN  G1 AT G12                6  329
*                                                                  6  330
*                                   SYSTEM ON LINE REQUEST         6  331
*                                                                  6  332
*  SECTION REQUESTS FOR TRAFFIC CONTROL                            6  333
*1        RES       0               TRAFFIC RESPONSIVE REQUEST     6  334
*                                                                  6  335
          LW,R6     MBIT            MBIT(1)=SN                     6  336
          AI,R6     -1                                             6  337
          LW,R13    MASK,R6                                        6  338
          STS,R13   MCDF            MCDF SET FOR SECTION SN        6  339
          LI,R12    3                                              6  340
          STB,R12   DM0DE,R6        DESIRED MODE FLAG              6  341
          B         REST            GO TO RESTORE REGS             6  342
*         TIME OF DAY FOR TRAFFIC CONTROL SECTION                  6  343
*2        RES       0               TIME OF DAY REQUEST            6  344
          LW,R6     MBIT            SN                             6  345
          AI,R6     -1                                             6  346
          LW,R13    MASK,R6                                        6  347
          STS,R13   MCDF            MCDF SET FOR SECTION SN        6  348
          LI,R12    2                                              6  349
          STB,R12   DM0DE,R6        DM0DE = 2 FOR TIME OF DAY      6  350
          B         REST            GO TO RESTORE REGS             6  351
*                                                                  6  352
*  MANUAL PATTERN FOR TRAFFIC CONTROL SECTION                      6  353
*3        RES       0               MANUAL PATTERN REQUEST         6  354
          LW,R12    CPNIN+6         GET PATTERN NUMBER             6  355
          SLS,R12   -16                                            6  356
          BAL,R8    CNV3            CONVERT                        6  357
          STW,R12   PN              PATTERN NUMBER IN PN           6  358
          AI,R12    -1              PN-1 IN R12                    6  359
          LW,R6     MBIT            SN                             6  360
          AI,R6     -1              SN-1 IN R6                     6  361
*                   SEARCH AVMPAT FOR PATTERN                      6  362
          LW,R7     NAVMPAT                                        6  363
          STW,R7    R14                                            6  364
M31       AI,R7     -1                                             6  365
          CB,R12    AVMPAT,R7                                      6  366
          BE        M32                                            6  367
          BDR,R14   M31                                            6  368
          LI,R14    1               ERROR IF NOT                   6  369
          STW,R14   MTEST           SET MTEST NON ZERO             6  370
          B         REST                                           6  371
M32       LW,R12    FMSCF                                          6  372
          BNEZ      REST            RETURN IF FLAG ON              6  373
          LW,R13    MASK,R6         SET MODE CHANGE DESIRED FLAG   6  374
          STS,R13   MCDF            FOR SECTION SN                 6  375
          LW,R12    PN              PATTERN NUMBER                 6  376
          AI,R12    -1                                             6  377
          STB,R12   DPATNUM,R6                                     6  378
          LI,R12    1                                              6  379
          STB,R12   DM0DE,R6        MANUAL PATTERN = 1             6  380
          LW,R12    PN                                             6  381
          SLS,R12   16              PN IN LEFT HALF                6  382
          AI,R12    2               2 FOR MANUAL PATTERN IN RIGHT  6  383
          STW,R12   FMTCHG                                         6  384
          B         REST            RESTORE REGS AND EXIT          6  385
* STANDBY FOR TRAFFIC CONTROL SECTION                             6  386
*4        RES       0                                              6  387
          LW,R7     MBIT            SN                             6  388
          AI,R7     -1                                             6  389
          LI,R12    0                                              6  390
          STB,R12   M0DES,R7                                       6  391
          STB,R12   DM0DE,R7                                       6  392
          MI,R7     NCNRD                                          6  393
          LI,R6     0                                              6  394
          LW,R13    CTLSC,R7                                       6  395
          STS,R13   STBYD,R6                                       6  396
          STS,R12   AUT0F,R6        RESET AUTO FLAGS               6  397
          AI,R6     2                                              6  398
          AI,R7     1                                              6  399
          CI,R6     NCND2                                          6  400
          BL        $-6                                            6  401
          LW,R6     MBIT            SN                             6  402
          AI,R6     -1              SN-1                           6  403
          B         REST                                           6  404
*                                                                  6  405
*  CONTROLLER FOR TRAFFIC CONTROL                                  6  406
I1        RES       0               ON LINE SELECTION              6  407
          LW,R6     MBIT            CN                             6  408
          AI,R6     -1                                             6  409
          LB,R7     CNSEC,R6                                       6  410
          AI,R7     -1                                             6  411
          LB,R12    M0DES,R7                                       6  412
          BEZ       I1ER            ERROR IF SECTION IN STANDBY    6  413
```

```
                LW,R13   MBIT              CN                                  6  414
                BAL,R8   BMG2                                                  6  415
                LW,R12   R13                                                   6  416
                AND,R12  CMALF,R6                                              6  417
                BNEZ     I1ER              ERROR IF MALFUNCTION FLAG IS OFF    6  418
                LS,R12   HOLD,R6                                               6  419
                BNEZ     I1ER              ERROR IF CONTROLLER IN STANDBY      6  420
                STS,R13  AUTOF,R6                                              6  421
                B        REST              RETURN                              6  422
I1ER            LI,R7    1                                                     6  423
                STW,R7   MTEST             MTEST NON ZERO FOR ERROR            6  424
                B        REST              RESTORE REGISTERS AND EXIT          6  425
*                                                                              6  426
I2              RES      0                 STANDBY SELECTION                   6  427
                LW,R13   MBIT              CN                                  6  428
                BAL,R8   BMG2                                                  6  429
                STS,R13  STBYD,R6          STANDBY DESIRED FLAG FOR CN         6  430
                LI,R12   0                                                     6  431
                STS,R12  AUTOF,R6          RESET AUTO FLAG                     6  432
                B        REST                                                  6  433
*                                                                              6  434
I4              RES      0                 FAILURE REPAIR SELECTION            6  435
                LW,R13   MBIT              CN                                  6  436
                BAL,R8   BMG2                                                  6  437
                LI,R12   0                                                     6  438
                STS,R12  CMALF,6           CONTROLLER MALFUNCTION FLAG         6  439
                B        REST                                                  6  440
*  A-PHASE GREEN SELECTED                                                      6  441
I5              RES      0                                                     6  442
                LW,R13   MBIT              CN                                  6  443
                BAL,R8   BMG2                                                  6  444
                LI,R12   0                                                     6  445
                LS,R12   HOLD,R6                                               6  446
                BEZ      I5X               ERROR, CN IN STANDBY                6  447
                LS,R12   CICEF,R6                                              6  448
                BNEZ     I5X               ERROR ,CN OPERATING AS CIC          6  449
                LS,R12   TRNSF,R6                                              6  450
                BNEZ     I5Y               WAIT. CN IN TRANSITION              6  451
                LS,R12   SEMSK,R6                                              6  452
                BEZ      I5X               ERROR                               6  453
                LW,R7    MBIT              CN                                  6  454
                AI,R7    -1                                                    6  455
                LB,R12   MI,R7                                                 6  456
                BNEZ     I5Y               WAIT                                6  457
                LW,R12   CPNIN+6           OBTAIN (GA) TEMP                    6  458
                SLS,R12  -16               RIGHT ADJUST                        6  459
                BAL,R8   CNV3              CONVERT                             6  460
                SLS,R12  1                 SCALED B1                           6  461
                STW,R12  GATEM                                                 6  462
                LW,R6    MBIT              CN                                  6  463
                AI,R6    -1                                                    6  464
                SLS,R6   2                 R6=(CN-1)*4                         6  465
                CB,R12   GMABC,R6          (GA) MIN                            6  466
                BL       I5X               ERROR,(GA)TEMP LT (GA) MIN          6  467
                LB,R13   GAABC,R6          GAB                                 6  468
                SW,R13   GATEM             GAB=(GA) TEMP                       6  469
                STW,R13  GBTEM             SAVE IN (GB) TEMP                   6  470
                AI,R6    1                 R6=(CN-1)*4+1                       6  471
                CB,R13   GMABC,R6          (GB) MIN                            6  472
                BL       I5X               ERROR,(GB) TEMP LT (GB) MIN         6  473
                LB,R12   SABCT,R6                                              6  474
                SW,R13   R12               R13=GBW=(GB)TEMP= SUMB              6  475
                LW,R14   GATEM                                                 6  476
                AI,R6    -1                                                    6  477
                LB,R12   SABCT,R6                                              6  478
                SW,R14   R12               R14=GAW=(GA)TEMP=SUMA               6  479
                SLS,R6   -2                                                    6  480
                STB,R14  GAWTP,R6          STORE GAW FOR CONTROLLER CN         6  481
                STB,R13  GBWTP,R6          STORE GBW FOR CONTROLLER CN         6  482
                LW,R13   MBIT                                                  6  483
                BAL,R8   BMG2                                                  6  484
                STS,R13  SPLCH,R6          SET OPERATOR SPLIT CHANGE FLAG      6  485
                B        REST                                                  6  486
I5Y             LI,R13   1                 MTEST + FOR WAIT                    6  487
                STW,R13  MTEST                                                 6  488
                B        REST              RESTORE REGISTERS AND EXIT          6  489
I5X             LI,R13   -1                MTEST - FOR ERROR                   6  490
                STW,R13  MTEST                                                 6  491
                B        REST              RESTORE REGISTERS AND EXIT          6  492
*  MANUAL OFFSET MODIFICATION SELECTED                                         6  493
I6              RES      0                 OFF SET SELECTION                   6  494
                LW,R13   MBIT              CN                                  6  495
                BAL,R8   BMG2                                                  6  496
                LI,R12   0                                                     6  497
                LS,R12   HOLD,R6                                               6  498
                BEZ      I5X               ERROR, CN IS IN STANDBY             6  499
                LS,R12   TRNSF,R6                                              6  500
                BNEZ     I5Y               WAIT. CN TRANSITION                 6  501
                LW,R7    MBIT              CN                                  6  502
                AI,R7    -1                                                    6  503
                LB,R12   MI,R7                                                 6  504
                BNEZ     I5Y               WAIT, CN TRANSITION                 6  505
                LW,R12   CPNIN+6           OBTAIN OFFSET B1                    6  506
                SLS,R12  -16                                                   6  507
                BAL,R8   CNV3                                                  6  508
                SLS,R12  1                                                     6  509
                LB,R6    CYCLC,R7                                              6  510
                CW,R12   KCL,R6            CYCLE LENGTH                        6  511
                BGE      I5X               ERROR, OFFSET GE CYCLE LENGTH       6  512
                STB,R12  WRKOF,R7          STORE WORKING OFFSET                6  513
                BAL,R8   BMG2                                                  6  514
                STS,R13  FSTCF,R6                                              6  515
                LW,11    KCL,R6            R11 = CYCLE LENGTH                  6  516
                STW,11   MTS               STORE CYCLE LENGTH                  6  517
                SLS,11   -1                                                    6  518
                STW,11   MTS+1             STORE 0.5 CYCLE LENGTH              6  519
```

```
         LI,13   4
*                        RECORD RELATIONS WITH SURR. CONTROLLERS          6 520
*
I6A      LB,6    SURCON,7                                                 6 521
         BEZ     I6C                                                      6 522
         LB,11   ENTRYOFF,6                                              6 523
         SW,11   R12                                                      6 524
*                        INSURE DIFFERENCE IS +- 0.5 CYCLE LENGTH         6 525
         CW,11   MTS+1                                                    6 526
         BLE     I6A1                                                     6 527
         SW,11   MTS                                                      6 528
         B       I6A2                                                     6 529
I6A1     MI,11   -1                                                       6 530
         CW,11   MTS+1                                                    6 531
         BLE     $+2                                                      6 532
         SW,11   MTS                                                      6 533
         MI,11   -1                                                       6 534
*                        PREPARE NEGATIVE VALUE FOR STORAGE               6 535
I6A2     CI,11   0                                                        6 536
         BGE     I6B                                                      6 537
         MI,11   -1                                                       6 538
         AI,11   6D                                                       6 539
I6B      STB,11  OFFSP,7          STORE VALUE                             6 540
         AI,7    1                                                        6 541
         BDR,13  I6A                                                      6 542
*                        SET HLDOFF FLAG FOR THIS CONTROLLER              6 543
I6C      LW,7    MBIT             R7 = CONTROLLER NO.                     6 544
         LW,12   7                                                        6 545
         SLS,12  -5                                                       6 546
         STW,12  2                R2 = WORD INDEX                         6 547
         SLS,12  5                                                        6 548
         SW,7    12               R7 = BIT INDEX                          6 549
         LW,13   MASK,7                                                   6 550
         STS,13  HLDOFF,2                                                 6 551
         B       REST                                                     6 552
*                                                                         6 553
*  DETECTOR REQUESTS FOR TRAFFIC CONTROL                                  6 554
*                                                                         6 555
J1       RES     0                ON LINE                                 6 556
         LW,R13  MBIT             ON                                      6 557
         BAL,R8  BMG1                                                     6 558
         LI,R12  0                                                        6 559
         LS,R12  DMALF,R6         DETECTOR MALFUNCTION FLAG               6 560
         BNEZ    J1X              ERROR, FLAG ON                          6 561
         LS,R12  CMMAL,R6         COMMUNICATIONS MALFUNCTION FLAG         6 562
         BNEZ    J1X              ERROR, FLAG ON                          6 563
         STS,R12 DIS,6            CLEAR DETECTOR STANDBY FLAG             6 564
         B       REST                                                     6 565
J1X      LI,R12  -1                                                       6 566
         STW,R12 MTEST            MTEST=-1                                6 567
         B       REST             RESTORE REGISTERS AND EXIT              6 568
*                                                                         6 569
J2       RES     0                STANDBY FOR DETECTOR                    6 570
         LW,R13  MBIT             ON                                      6 571
         BAL,R8  BMG1                                                     6 572
         STS,R13 DIS,R6           SET DETECTOR ON STANDBY FLAG            6 573
         B       REST                                                     6 574
*                                                                         6 575
J4       RES     0                FAILURE REPAIR                          6 576
         LW,R13  MBIT             ON                                      6 577
         LW,R6   MBIT             ON                                      6 578
         AI,R6   -1               ON=1                                    6 579
         LW,R12  MASK                                                     6 580
         ANDW,R12 TSTRT,R6                                                6 581
         AW,R12  RTC                                                      6 582
         STW,R12 TSTRT,R6                                                 6 583
         BAL,R8  BMG1             FLAG                                    6 584
         LI,R12  0                                                        6 585
         STS,R12 DMALF,R6                                                 6 586
         B       REST                                                     6 587
*                                                                         6 588
K2       RES     0                FAILURE REPAIR, COMM, TRAFFIC C.        6 589
         LW,R13  MBIT             ON IN  R13                              6 590
         LW,R6   MBIT                                                     6 591
         AI,R6   -1               ON=1 IN R6                              6 592
         LW,R12  MASK             CLEAR COMMUNICATIONS ON                 6 593
         ANDW,R12 TSTRT,R6                                                6 594
         AW,R12  RTC                                                      6 595
         STW,R12 TSTRT,R6                                                 6 596
         BAL,R8  BMG1                                                     6 597
         LI,R12  0                                                        6 598
         STS,R12 CMMAL,R6         FAILURE FLAG                            6 599
         B       REST                                                     6 600
*                                                                         6 601
*        CIC SYSTEM REQUESTS (ACTIVATE AND RELEASE)                       6 602
*                                                                         6 603
L1       RES     0                ACTIVATE                                6 604
         LI,R6   0                . SET CIC SELECTED FLAGS                6 605
         LI,R14  NCARD            . FOR ALL CIC CONTROLLERS               6 606
         LW,R13  CICSY,R6         . IN SYSTEM                             6 607
         STW,R13 CICSF,R6                                                 6 608
         AI,R6   2                                                        6 609
         BDR,R14 $-3                                                      6 610
         B       REST                                                     6 611
*                                                                         6 612
L2       RES     0                RELEASE                                 6 613
         LI,R12  0                . CLEAR CIC SELECTED FLAGS              6 614
         LI,R6   0                . FOR ALL CIC CONTROLLERS               6 615
         LI,R14  NCARD            . IN SYSTEM                             6 616
         STW,R12 CICSF,R6                                                 6 617
         AI,R6   2                                                        6 618
         BDR,R14 $-2                                                      6 619
         B       REST                                                     6 620
*                                                                         6 621
*        CIC SECTION REQUESTS - TWO CHOICES                               6 622
*                                                                         6 623
M1       RES     0                ACTIVATE                                6 624
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                LW,R7    MBIT           SN                          6  626
                AI,R7    >1             * SET CIC SELECTED FLAGS     6  627
                MI,R7    NCWRD          *  FOR ALL CIC CONTROLLERS   6  628
                LI,R6    0              *  IN SECTION SN             6  629
                LI,R14   NCWRD                                       6  630
                LW,R13   CICSC,R7                                    6  631
                STS,R13  CICSF,R6                                    6  632
                AI,R6    2                                           6  633
                AI,R7    1                                           6  634
                BDR,R14  $-4                                         6  635
                B        REST                                        6  636
*                                                                    6  637
M2              RES      0              RELEASE                      6  638
                LW,R7    MBIT           SN                          6  639
                AI,R7    >1                                          6  640
                MI,R7    NCWRD          * CLEAR CIC SELECTED FLAGS   6  641
                LI,R6    0              *  FOR ALL CIC CONTROLLERS   6  642
                LI,R14   NCWRD          *  IN SECTION SN             6  643
                LI,R12   0                                           6  644
                LW,R13   CICSC,R7                                    6  645
                STS,R12  CICSF,R6       CLEAR CICSFBITS              6  646
                AI,R6    2                                           6  647
                AI,R7    1                                           6  648
                BDR,R14  $-4                                         6  649
                B        REST                                        6  650
*                                                                    6  651
*       CIC CONTROLLER REQUEST                                       6  652
*                                                                    6  653
M1              RES      0              ACTIVATE                     6  654
                LW,R13   MBIT           CN                          6  655
                BAL,R8   BMG2                                        6  656
                LI,R12   0                                           6  657
                LS,R12   CICSY,R6                                    6  658
                BEZ      M1X            ERROR=CN NOT CIC CONTROLLER  6  659
                STS,R13  CICSF,R6       SET CIC SELECTED FLAG FOR CN 6  660
                B        REST                                        6  661
M1X             LI,R12   >1             SET NE 0 FOR ERROR           6  662
                STW,R12  MTEST                                       6  663
                B        REST           RESTORE REGISTERS AND EXIT   6  664
*       RELEASE CIC CONTROLLER REQUEST                               6  665
M2              RES      0              RELEASE                      6  666
                LW,R13   MBIT           CN                          6  667
                BAL,R8   BMG2                                        6  668
                LI,R12   0                                           6  669
                STS,R12  CICSF,R6       CLEAR CIC SELECTED FLAG FOR CN 6 670
                B        REST           RESTORE REGISTERS AND EXIT   6  671
*                                                                    6  672
*       FLOW DATA, TRAFFIC CONTROL, MAP CONTROL                      6  673
*                                                                    6  674
C4              RES      0              DETERMINE FLOW DATA OCCUPANCY 6 675
                GBT      16,1           OCCUPANCY                    6  676
                BNEZ     $+3                                         6  677
                LI,R7    0              0 FOR OCCUPANCY              6  678
                B        C4A                                         6  679
                GBT      17,1                                        6  680
                BNEZ     $+3                                         6  681
                LI,R7    1              1 FOR VOLUMN                 6  682
                B        C4A                                         6  683
                GBT      18,1                                        6  684
                BNEZ     $+3                                         6  685
                LI,R7    3              3 FOR QUEUE                  6  686
                B        C4A                                         6  687
                GBT      19,1                                        6  688
                BNEZ     $+3                                         6  689
                LI,R7    4              4 FOR STOPS                  6  690
                B        C4A                                         6  691
                GBT      20,1                                        6  692
                BNEZ     $+3                                         6  693
                LI,R7    2              2 FOR SPEED                  6  694
                B        C4A                                         6  695
                GBT      21,1                                        6  696
                BNEZ     C4B            NO PARAMETER SELECTED        6  697
                LI,R7    5              5 FOR DELAY                  6  698
C4A             RES      0                                           6  699
                STW,R7   R8             SAVE PARAMETER CODE IN R8    6  700
                MI,R7    10             INITIALIZE THRESHOLD         6  701
                LI,R6    >10            INDEX FOR PARAMETER          6  702
                LW,R13   CPNIN          INDEX FOR THRESHOLD          6  703
                LI,R12   0                                           6  704
                LS,R12   MASK+32,R6                                  6  705
                BEZ      $+4                                         6  706
                AI,R7    1                                           6  707
                BIR,R6   $-3                                         6  708
                B        C4H            NO THRESHOLD SELECTED        6  709
                STW,R8   PARCOD         SET PARAMETER CODE           6  710
                LH,R12   THRVAL,R7                                   6  711
                STW,R12  THRSH          SET THRESHOLD VALUE          6  712
                B        REST                                        6  713
C4B             LI,R12   >1             >1 FOR ERROR                 6  714
                STW,R12  MTEST          SET MTEST 0 OR >1            6  715
                B        REST           GO TO RESTORE REGS           6  716
*                                                                    6  717
X               RES      0                                           6  718
                PBT      3              TURN ON SYSTEM ERROR         6  719
                B        REST                                        6  720
Y               RES      0                                           6  721
                PBT      5              TURN ON WAIT                 6  722
                B        REST                                        6  723
Z               RES      0                                           6  724
                PBT      4              TURN ON DISPLAY ERROR        6  725
REST            RES      0              RESTORE REGS AND EXIT        6  726
                LCI      0                                           6  727
                LM,0     SREGS                                       6  728
                 B       *R15                                        6  729
DEBUG           RES      0                                           6  730
*         TURN ON MSUB ERROR FLAG                                    6  731
                LI,R1    >1                                          6  732
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                STW,R1    MSER                                                  6  733
                B         REST                                                  6  734
*                                                                               6  735
SREGS           RES       0                                                     6  736
                DATA      0,0,0,0,0,0,0,0   REGISTERS 0-7                      6  737
                DATA      0,0,0,0,0,0,0,0   REGISTERS 8-15                     6  738
ID              RES       0                                                     6  739
                B         G1                TRAFFIC RESPONSIVE-SYSTEM           6  740
                B         G2                TIME OF DAY                         6  741
                B         DEBUG             MCODE #3 OMITTED                    6  742
                B         G4                STANDBY                             6  743
                B         H1                TRAFFIC RESPONSIVE-SECTION          6  744
                B         H2                TIME OF DAY                         6  745
                B         H3                MANUAL PATTERN                      6  746
                B         H4                STANDBY                             6  747
                B         I1                ON LINE-CONTROLLER                  6  748
                B         I2                STANDBY                             6  749
                B         I4                FAILURE REPAIR                      6  750
                B         I5                A PHASE GREEN                       6  751
                B         I6                OFF SET                             6  752
                B         J1                ON LINE DETECTOR                    6  753
                B         J2                STANDBY                             6  754
                B         J4                FAILURE REPAIR-DETECTOR             6  755
                B         K2                FAILURE REPAIR-COMMUNICATIONS       6  756
                B         L1                ACTIVATE-CIC-SYSTEM                 6  757
                B         L2                RELEASE                             6  758
                B         M1                ACTIVATE-CIC-SECTION                6  759
                B         M2                RELEASE                             6  760
                B         N1                ACTIVATE-CIC-CONTROLLER             6  761
                B         N2                RELEASE                             6  762
                B         C4                                                    6  763
                B         DEBUG             MCODE # 24 OMITTED                  6  764
                B         Y                 TURN ON WAIT                        6  765
                B         Z                 DISPLAY ERROR                       6  766
                B         X                 SYSTEM ERROR                        6  767
*                                                                               6  768
BMG1            RES       0                                                     6  769
                AI,R13    =1                                                    6  770
                STW,R13   6                                                     6  771
                SLS,R6    =S                INDEX FOR NON-INTERLEAVED ARRAY     6  772
                B         *+S                                                   6  773
BMG2            RES       0                                                     6  774
                AI,R13    =1                                                    6  775
                STW,R13   6                                                     6  776
                SLS,R6    =S                                                    6  777
                SLS,R6    1                 INDEX FOR INTERLEAVED ARRAY         6  778
                AND,R13   =X'0000001F'      OBTAIN BIT MASK                     6  779
                STW,R13   7                                                     6  780
                LW,R13    MASK,R7                                               6  781
                B         *R8               EXIT                                6  782
*  CONVERT INVERTED BCD TO BINARY SUBROUTINE                                    6  783
*         REFERENCED BY                                                         6  784
*         BAL,R8    CNV3    FOR 3-DIGIT CONVERSION                            6  785
*         BAL,R8    CNV4    FOR 4-DIGIT CONVERSION                            6  786
*     AT ENTRY, 3 OR 4 INVERTED BCD DIGITS ARE IN R12 (RIGHT JUSTIFIED)         6  787
*     AT EXIT, R12= BINARY NUMBER                                               6  788
*              R13 IS DESTROYED                                                 6  789
*                                                                               6  790
CNV3            RES       0                 ENTRANCE TO CONVERT 3 DIGITS        6  791
                EOR,R12   =X'00000FFF'      OBTAIN 3 BCD DIGITS                 6  792
                AND,R12   =X'00000FFF'      CLEAR                               6  793
                B         *+3                                                   6  794
CNV4            RES       0                 ENTRANCE FOR 4 DIGITS               6  795
                EOR,R12   =X'0000FFFF'      OBTAIN 4 BCD DIGITS                 6  796
                AND,R12   =X'0000FFFF'      CLEAR                               6  797
                SLS,R12   4                 . COMPUTE N= 1000*N3                6  798
                LH,R13    12                .          + 100*N2                 6  799
                MI,R13    10                .          +  10*N1                 6  800
                AND,R12   =X'0000FFFF'      .          +     N0                 6  801
                SLS,R12   4                                                     6  802
                AH,R13    12                                                    6  803
                MI,R13    10                                                    6  804
                AND,R12   =X'0000FFFF'                                          6  805
                SLS,R12   4                                                     6  806
                AH,R13    12                                                    6  807
                MI,R13    10                                                    6  808
                AND,R12   =X'0000FFFF'                                          6  809
                SLS,R12   =12                                                   6  810
                AW,R12    13                                                    6  811
                B         *R8               EXIT                                6  812
*                                                                               6  813
*  TIME SUBROUTINE - REFERENCED BY                                              6  814
*         BAL,R8    TIME                                                        6  815
*                                                                               6  816
*         AT EXIT, R12 = HHMM (EBCDIC) AND R13 = DESTROYED                      6  817
*                                                                               6  818
TIME            RES       0                                                     6  819
                CAL1,8    TIMFPT            OBTAIN RBM TIME                     6  820
                LW,R12    TIMBUF            HHXM                                6  821
                LW,R13    TIMBUF+1          HHXMMXXX                            6  822
                SLD,R12   =8                OHHXMMXX                            6  823
                SLS,R12   =8                OOHHMMXX                            6  824
                SLD,R12   16                HHMMXXOO                            6  825
                B         *R8               EXIT                                6  826
TIMFPT          GEN,8,24  X'10',WA(TIMBUF)  FPT FOR RBM TIME                    6  827
                PAGE                                                            6  828
*                         LOCAL VARIABLES                                       6  829
PN              DATA      0                 PATTERN NUMBER                      6  830
*         *** MAP THRESHOLD VALUES                                              6  831
THRVAL          RES       0                                                     6  832
                DATA,2    5,10,20,30,50,75,75,75,75                 OCC         6  833
                DATA,2    200,300,400,600,800,1000,1000,1000,1000,1000 VOL      6  834
                 DATA,2    5,10,15,20,30,40,40,40,40,40            SPO         6  835
                DATA,2    3,6,9,12,12,12,12,12,12,12                QUE         6  836
                DATA,2    3,6,9,12,12,12,12,12,12,12                STP         6  837
                DATA,2    10,20,40,60,80,120,120,120,120,120        DEL         6  838
                 END                                                            6  839
```

2.6.55 SUBROUTINE MSUB2

```
ROUTINE:  MSUB2

          *  *  MSUB2
MSUB2        DSECT                                          8  1
             RES      4                TIMBUF               8  2
             DATA     0                CRTCL                8  3
             END                                           8  4
                                                           8  5
```

2.6.56 SUBROUTINE SRCFT

```
ROUTINE:  SRCFT

C   *   SRCFT                                                              42    1
      SUBROUTINE SRCFT(INDEX,IRTN)                                         42    2
C                                                                          42    3
C        SUBROUTINE TO SEARCH FOR FAILURE TABLE ENTRY TO BE UPDATED        42    4
C                                                                          42    5
C        CALLING ARGUMENTS                                                 42    6
C           INDEX = INDEX OF FAIL TABLE ENTRY                              42    7
C           IRTN  = 0  EXECUTE NEXT STATEMENT AFTER CALL (ERROR RETURN)    42    8
C                 = 1  JUMP 2 STATEMENTS AFTER CALL AND BEGIN EXECUTION    42    9
C                      FOR NORMAL RETURN                                   42   10
C                                                                          42   11
      INTEGER FLTAB                                                        42   12
      INTEGER          FMTTY       , FMTNU       , FMTCM                   42   13
      COMMON /HARGS/   FMTTY       , FMTNU       , FMTCM                   42   14
      COMMON /BLK25/ AMCC(138), CMMAL(17), CMTAB(25R),                     42   15
     * DTTAB(258)  ,  DIS(17)     ,  DMALF(17)   ,  DMODE       ,          42   16
     * FLTAB(800)  ,  HRF         ,  MODES       ,  NAI         ,          42   17
     * NSFAL, SBAR(69), SECFC(4), SCDFC(4), V0L(138)                       42   18
   10 CONTINUE                                                             42   19
      IND = (INDEX-1)*2 + 2                                                42   20
      CALL HALF(FLTAB,IND,NUMB)                                            42   21
      IF(NUMB.NE.FMTNU) GO TO 20                                           42   22
      IND = (INDEX-1)*4 + 2                                                42   23
      CALL GETBY(FLTAB,IND,ITYPE)                                          42   24
      IF(ITYPE.EQ.FMTTY) GO TO 30                                          42   25
   20 CONTINUE                                                             42   26
      INDEX = INDEX - 4                                                    42   27
      IF(INDEX.GE.0) GO TO 10                                              42   28
C                                                                          42   29
C        SET ERROR RETURN                                                  42   30
C                                                                          42   31
      IRTN = 0                                                             42   32
      RETURN                                                               42   33
   30 CONTINUE                                                             42   34
C                                                                          42   35
C        SET NORMAL RETURN                                                 42   36
C                                                                          42   37
      IRTN = 1                                                             42   38
      RETURN                                                               42   39
      END                                                                  42   40
```

2.6.57 ROUTINE O

```
ROUTINE:  RTN9

      C    *    RTN9                                                          9     1
           SUBROUTINE RTN9                                                    9     2
      C    ** THE PURPOSE OF ROUTINE 9 IS TO SET A-PHASE GREEN INDICATION BITS 9     3
      C    ** IN THE A0G ARRAY, AND START OF A-PHASE GREEN BITS IN THE STARTA  9   * 4
      C    ** ARRAY, FOR EACH CONTROLLER.                                      9     5
      C    ** JL20 INDEX INTO BIT ARRAY OF EACH A0RD,UNPACKS 8 BITS AT A TIME, 9     6
           COMMON /BLANK/GA1(128),GA2(128)                                    9     7
           COMMON /DATL2/ICON,JL2,KL2,IDECR,NSL2(50)                          9     8
           DIMENSION                    GAI(32),STRTA(32),A0G(32)             9     9
           COMMON /PCOM/          GAI,STRTA,A0G,I                             9    10
           INTEGER GAI,GA1,GA2,A0G,STRTA                                      9    11
           DATA IALTB/0/                                                      9    12
           IL2=0                                                              9    13
           I=0                                                                9    14
           DO 350 KL2=1,97,32                                                 9    15
           I=I+1                                                              9    16
      C    ** UNPACK A0G,GAI,GA1,AND GA2 BIT ARRAYS                           9    17
      C    ** STARTING AT 1,9,17,25,ETC.                                      9    18
        122 CALL UNP0                                                         9    19
           DO 340 JL2=1,32                                                    9    20
           IL2=IL2+1                                                          9    21
      C    ** CHECK WHICH ALTERNATE BUFFER IN USE. SET GA1 OR GA2 TO COMPLEMENT 9    22
      C    ** OF GAI,SINCE MUX SUPPLIES DATA IN COMPLEMENT FORM.              9    23
           IF(IALTB.EQ.1) GO TO 124                                           9    24
           GA1(IL2)=-GAI(JL2)+1                                               9    25
           GO TO 126                                                          9    26
        124 GA2(IL2)=-GAI(JL2)+1                                              9    27
        126 STRTA(JL2)=0                                                      9    28
           IR12=0                                                             9    29
           IR10=0                                                             9    30
      C    ** IR10=GA1.AND.GA2                                                9    31
           IF(GA1(IL2).EQ.1.AND.GA2(IL2).EQ.1) IR10=1                         9    32
      C    ** STRTA=(A0G.EOR.IR10).AND.IR10                                   9    33
           IF(IR10.EQ.1.AND.A0G(JL2).EQ.0) STRTA(JL2)=1                       9    34
      C    ** A0G=(A0G.AND.(GA1.OR.GA2)).OR.IR10)                             9    35
           IF ((GA1(IL2).EQ.1.OR.GA2(IL2).EQ.1).AND.A0G(JL2).EQ.1) IR12=1     9    36
           IF(IR12.EQ.1.OR.IR10.EQ.1) IR12=1                                  9    37
           A0G(JL2)=IR12                                                      9    38
      C    ** PACK STRTA AND A0G BIT ARRAYS                                   9    39
        340 CONTINUE                                                          9    40
           CALL PCK0                                                          9    41
        350 CONTINUE                                                          9    42
      C    ** SET SWITCH FOR ALTERNATING GA1 AND GA2 BUFFER.                  9    43
           IALTB=-IALTB+1                                                     9    44
           RETURN                                                             9    45
           END                                                                9    46
```

2.6.58 SUBROUTINE PCKO

```
ROUTINE:  PCK9

      C  •   PCK9                                                                    11    1
           SUBROUTINE PCK9                                                           11    2
           COMMON /BLK7 /A8GI(16)     , INTHI(31)  , INT2I(31)  ,                    11    3
          • KLTC(17),K3PHI(31),STUPF,NQL(31)                                       11    4
           COMMON/BLK28/AJR(14),PIA(6),BCM(2),HSB(14),AP8M1(14),CPN8U,CPN8T,        11    5
          • MARR(840)   , HMAP(2)     , JCNT        , KCNT        ,                11    6
          • MNC15       , WHSBF       , CL9CK       , WMINF       ,                11    7
          • MINCT       , TAB(3)      , N8N8(8)                                   11    8
           EQUIVALENCE (STRTI,A8GI(2))                                              11    9
           INTEGER A8GI,GAII,STRTI                                                  11   10
           DIMENSION              GAI(32),STRTA(32),A8G(32)                         11   11
           COMMON /PC8M/          GAI,STRTA,A8G,I                                   11   12
           INTEGER GAI,GA1,GA2,A8G,STRTA                                            11   13
           CALL PKBIT(STRTI,I  ,STRTA)                                              11   14
           CALL PKBIT(A8GI,I  ,A8G)                                                 11   15
           RETURN                                                                   11   16
           END                                                                      11   17
```

2.6.59 SUBROUTINE UNPO

```
ROUTINE:  UNPO

C  *   UNPO                                                                  10    1
       SUBROUTINE UNPO                                                       10    2
       COMMON /BLK7 /A8GI(16)     , INTMI(31)  , INT2I(31)  ,                10    3
      * KCTC(17),K3PMI(31),STUPF,NOL(31)                                     10    4
       COMMON/BLK28/AGR(14),PIA(6),BCM(2),MS8(14),AP8M1(14),CPN8U,CPN8T,     10    5
      * MARK(6*0)   , MMAP(2)     , JCNT        , KCNT        ,              10    6
      * MNC15        , MMS8F       , CL8CK       , MMINF       ,              10    7
      * MINCT        , TAB(3)      , N8N8(8)                                 10    8
       EQUIVALENCE (GAII,AGR(2)),(STRTI,A8GI(2))                             10    9
       INTEGER A8GI,GAII,STRTI                                               10   10
       DIMENSION                    GAI(32),STRTA(32),A8G(32)                10   11
       COMMON /PC8M/          GAI,STRTA,A8G,I                               10   12
       INTEGER GAI,GA1,GA2,A8G,STRTA                                         10   13
       CALL UNBIT(GAII,I  ,GAI)                                              10   14
       CALL UNBIT(A8GI,I  ,A8G)                                              10   15
       RETURN                                                                10   16
       END                                                                   10   17
```

2.6.60 ROUTINE P

ROUTINE: RTNP

```
C   *   RTNP                                                                12    1
      SUBROUTINE RTNP                                                       12    2
      COMMON /BLK6 / FMC        , FMARK      , MAST(9)    ,                 12    3
     * AMAST       , JMAST      , KMAST      , EMAST      ,                 12    4
     * MMAST       , NMAST      , OMAST      , IMAST      ,                 12    5
     * SPACE       , MPBKY                                                 12    6
      COMMON /BLK7 / ABGI(16)    , INTMI(31)  , INT2I(31)  ,                12    7
     * KCTC(17),KSPMI(31),STUPF,NGL(31)                                    12    8
      COMMON /BLK10/ CLENG       , DTLNG      , CMLNG      ,                 12    9
     * DUMY1       , DUMY2,                                                12   10
     * CNTLI(372), ENTFL(5), KCL(17), KCTF(17),                            12   11
     * KCSF(17), NMVAI(31), SMSKI(6),                                      12   12
     * VRINI(123)  , LNKPT(64)                                             12   13
      COMMON /BLK17/ ADVNI(8)    , CICBI(8)   , CABGI(8)   ,                12   14
     * IADPI(8)    , CNTDR(124) , CNTNM      , IL2        ,                12   15
     * INTMI(31)   , INTLI(31)  , INTBI(32)  , KL1        ,                12   16
     * STBTI(32), TIMEI(32), DVBKI(69)                                     12   17
      COMMON /BLK18/ CICTI(8)    , CTBDI(8)   , STBDI(8)   ,                12   18
     * CNTI(62)    , CURBI(31)  , CYCLI(31)  , ENINI(496) ,                12   19
     * ENBFI(31)   , GAABI(124) , GAMTI(31)  , GBMTI(31)  ,                12   20
     * GAABI(124)  , GMABI(124) , GUABI(124) , INTDI(496) ,                12   21
     * SABCI(124)  , TKMI(31)   ,ARKBI(31)                                 12   22
      COMMON /BLK19/ CC2(129), DFAIL(69), DBF(17),                          12   23
     * MII(31)     , RAMBC(258) , RAMSP(258) ,BTC         ,                12   24
     * TSTRT(516)                                                          12   25
      COMMON/BITL2/BITAR(640)                                               12   26
      DIMENSION ADVNM(32),ABG(32),APB(32),AUTBF(32),CICBP(32),              12   27
     1CICEF(32),CICTF(32),CTBDF(32),CMALF(32),CPABG(32),FSTCF(32),          12   28
     2HBLD(32),IADVP(32),INT1S(32),SEMSK(32),SPLCH(32),STBYD(32),           12   29
     3STRTA(32),TRNSF(32),CICSF(32)                                         12   30
      EQUIVALENCE                                                           12   31
     1(ADVNM,BITAR(  1)),(ABG  ,BITAR( 33)),(APB  ,BITAR( 65)),            12   32
     2(AUTBF,BITAR( 97)),                                                   12   33
     1(CICBP,BITAR(129)),(CICEF,BITAR(161)),(CICSF,BITAR(193)),             12   34
     1(CICTF,BITAR(225)),(CTBDF,BITAR(257)),(CMALF,BITAR(289)),             12   35
     3(CPABG,BITAR(321)),(FSTCF,BITAR(353)),(HBLD ,BITAR(385)),             12   36
     4(IADVP,BITAR(417)),(INT1S,BITAR(449)),(SEMSK,BITAR(481)),             12   37
     5(SPLCH,BITAR(513)),(STRTA,BITAR(545)),(STBYD,BITAR(577)),             12   38
     6(TRNSF,BITAR(609))                                                    12   39
      COMMON /BYTL2/ICBN,JL2,KL2,IDECR,WSL2(50)                             12   40
      INTEGER ADVNM,ABG,APB,AUTBF,BPSIF,BTRNF,CICBP,CICEF,CICSF,            12   41
     1CICTF,CTBDF,CMALF,CPABG,FSTCF,GAI,HBLD,SEMSK,SPLCH,STBYD,             12   42
     2STRTA,TRNSF                                                           12   43
      INTEGER AMBPN,CBNTB,CNTLN,CYCLC,ENINT,GAABC,GAMTP,GBMTP,              12   44
     1GLABC,GMABC,LOSET,QCICT,QQQ,QQRR,QVBK,RRR,STBTM,SABCT,TEMCT,TIMEB,    12   45
     2TKM,VBL,VBT                                                           12   46
      INTEGER AMBPI,CBNTI,CNTLI,CYCLI,ENINI,GAABI,GAMTI,GBMTI,GUABI,        12   47
     1GLABI,GMABI,QCICI,QQQI,QQRRI,QVBKI,RRRI,STBTI,SABCI,TEMCI,TIMEI,      12   48
     2TKMI,VBLI,VBTI                                                        12   49
      INTEGER CLENG,CNTDR,EMAST,STUPF,ENTFL                                 12   50
      INTEGER CURBF,ENBFF,VRINT,MRKBF                                       12   51
      EQUIVALENCE (WSL2(1),CBNTB),(WSL2(2),INTR2),(WSL2(3),INTRM),          12   52
     1(WSL2(4),INTNL),(WSL2(5),INTNM),(WSL2(6),INTBU),                      12   53
     2(WSL2(7),TIMEB),(WSL2(8),IN9),(WSL2(9),IR10)                          12   54
C  ** THE PURPOSE OF THIS ROUTINE IS TO SCAN THE COMPLEMENT OF              12   55
C  ** CONTROLLERS WHICH HAVE BEEN FLAGGED AS OUT OF SYNC WITH COMPUTER      12   56
C  ** IF OUT OF SYNC BY ONE INTERVAL A CORRECTION IS ATTEMPTED OTHERWISE    12   57
C  ** THE CONTROLLER IS DROPPED                                            12   58
      JL2=I                                                                 12   59
C  ** FORM ABG.AND.CPABG.AND.HBLD.AND.SEMSK.  IF EQUAL TO ZERO NOTHING     12   60
C  ** TO DO. OTHERWISE CONTROLLER IS OUT OF SYNC                           12   61
  330 KL2=JL2+ICBN                                                          12   62
      IF((ABG(JL2)*CPABG(JL2)).EQ.1.AND.HBLD(JL2).EQ.1.AND.SEMSK(JL2).      12   63
     1EQ.1) GO TO 331                                                       12   64
      GO TO 350                                                             12   65
  331 IF (CPABG(JL2).EQ.1) GO TO 400                                        12   66
      GO TO 650                                                             12   67
  350 TIMEB=0                                                               12   68
      INTBU=1                                                               12   69
  332 CALL PCKP1                                                            12   70
C  ** HAVE 8 CONTROLLERS BEEN PROCESSED                                    12   71
  334 IF(JL2.LT.32) GO TO 335                                               12   72
      IF (CLENG .GT. 0)  MAST(KMAST) = 1                                    12   73
      RETURN                                                                12   74
  335 CONTINUE                                                              12   75
      JL2=JL2+1                                                             12   76
      GO TO 330                                                             12   77
  400 CALL UNPP1                                                            12   78
C  ** INCREMENT TIMEOUT                                                    12   79
      TIMEB=TIMEB+IDECR                                                     12   80
C  ** CHECK IF TIMEOUT HAS REACHED 2 SECONDS.                              12   81
      IF (TIMEB.LT.3) GO TO 332                                             12   82
      IF (INTBU.NE.0) GO TO 610                                             12   83
      IF (TIMEB.GT.6) GO TO 520                                             12   84
      GO TO 332                                                             12   85
  520 TIMEB=0                                                               12   86
      INTBU=1                                                               12   87
      IADVP(JL2)=1                                                          12   88
      GO TO 332                                                             12   89
  610 CMALF(JL2)=I                                                          12   90
      TRNSF(JL2)=0                                                          12   91
      CALL PKBYT(MII,KL2,0)                                                 12   92
      CICSF(JL2) = 0                                                        12   93
      CICEF(JL2)=0                                                          12   94
      CICTF(JL2) = 0                                                        12   95
C  ** SET ENTRY FLAG FOR UPDATE SUBROUTINE                                 12   96
      ENTFL(1)=0                                                            12   97
      HBLD(JL2)=0                                                           12   98
C  ** SET CONTROLLER NUMBER IN FAILURE TABLE AND INCREMENT CLENG            12   99
```

```
      CONTB=ICON+JL2                                                    12  100
      CLENG=CLENG+1                                                     12  101
      CALL PKHW (CONTI,CLENG,CONTB)                                     12  102
      GO TO 350                                                         12  103
C  ** UNPACK INTERV2,INTNUML,INTERVH                                    12  104
  850 CALL UNPP2                                                        12  105
      IF (INTR2.LE.INTNL) GO TO 990                                     12  106
      GO TO 350                                                         12  107
  990 IF (INTRH.NE.INTNL) GO TO 610                                     12  108
      ADVNH(JL2)=1                                                      12  109
      GO TO 332                                                         12  110
      END                                                               12  111
```

2.6.61 SUBROUTINE PCKP1

```
ROUTINE:  PCKP1

      C  *   PCKP1                                                          15    1
         SUBROUTINE PCKP1                                                  15    2
         COMMON /BLK17/ ADVNI(8)    , CICBI(8)    , CABGI(8)    ,          15    3
        * IADPI(8)     , CNTDR(124) , CNTNM       , IL2         ,          15    4
        * INTMI(31)    , INTLI(31)  , INTBI(32)   , KL1         ,          15    5
        * STBTI(32), TIMEI(32), QVBKI(69)                                 15    6
         INTEGER AMBMI,CBNTI,CNTLI,CYCLI,ENINI,GAABI,GAATI,GBATI,GUARI,    15    7
        1GLABI,GMABI,QCICI,QQQI,QQRRI,QVBKI,RRRI,STBTI,SABCI,TEXCI,TIMEI,  15    8
        2TKMI,VBLI,VBTI                                                   15    9
         COMMON /BYTL2/ICBN,JL2,KL2,IDECR,WSL2(50)                        15   10
         EQUIVALENCE (WSL2(1),CBNTB),(WSL2(2),INTR2),(WSL2(3),INTRM),     15   11
        1(WSL2(4),INTNL),(WSL2(5),INTNM),(WSL2(6),INTBU),                 15   12
        2(WSL2(7),TIMEB)                                                  15   13
         INTEGER CBNTB,TIMEB                                              15   14
         CALL PKBYT(TIMEI,KL2,TIMEB)                                      15   15
         CALL PKBYT(INTBI,KL2,INTBU)                                      15   16
         RETURN                                                           15   17
         END                                                              15   18
```

2.6.62 SUBROUTINE UNPP1

```
ROUTINE:  UNPP1

C  *   UNPP1
       SUBROUTINE UNPP1                                                  13    1
       COMMON /BLK17/ ADVNI(8)    , CICBI(8)    , CABGI(8)    ,          13    2
      * IADPI(8)      , CNTDR(124) , CNTNM       , IL2         ,          13    3
      * INTMI(31)     , INTLI(31)  , INTBI(32)   , KL1         ,          13    4
      * STBTI(32), TIMEI(32), QVBKI(69)                                  13    5
       INTEGER AMBPI,CBNTI,CNTLI,CYCLI,ENINI,GAABI,GA*TI,GB*TI,GUARI,    13    6
      1GLABI,GMABI,QCICI,QQQI,QQRRI,QVBKI,RRRI,STBTI,SABCI,TERCI,TIMEI,  13    7
      2TRMI,VBLI,VBTI                                                    13    8
       COMMON /BYTL2/ICBN,JL2,KL2,IDECR,WSL2(50)                         13    9
       EQUIVALENCE (*SL2(1),CBNTB),(*SL2(2),INTR2),(*SL2(3),INTRH),      13   10
      1(*SL2(4),INTNL),(*SL2(5),INTNM),(*SL2(6),INTBU),                  13   11
      2(*SL2(7),TIMEB)                                                   13   12
       INTEGER CBNTB,TIMEB                                               13   13
       CALL UPBYT(TIMEI,KL2,TIMEB)                                       13   14
       CALL UPBYT(INTBI,KL2,INTBU)                                       13   15
       RETURN                                                            13   16
       END                                                               13   17
                                                                         13   18
```

2.6.63 SUBROUTINE UNPP2

```
ROUTINE: UNPP2

C  *   UNPP2                                                                  14*    1
      SUBROUTINE UNPP2                                                        14*    2
      COMMON /BLK7 /ABSI(16)    , INTMI(31)  , INT2I(31)  ,                   14*    3
     * KETC(17),KBPMI(31),STOPF,NGL(31)                                      14*    4
      COMMON /BLK17/ ADVMI(8)   , CICBI(6)   , CABSI(8)   ,                   14*    5
     * IADPI(8)    , CNTSM(120) , CNTAM      , IL2        ,                   14*    6
     * INTMI(31)   , INTLI(31)  , INTBI(32)  , KL1        ,                   14*    7
     * STBTI(32), TIMEI(32), ZZBKI(69)                                       14*    8
      INTEGER AMBMI,CBNTI,CNTLI,CYCLI,ENINI,GAABI,GA*TI,GB*TI,GLABI,          14*    9
     1GLABI,GMABI,GCICI,GGJI,GJRKI,GVBKI,HRRI,STBTI,SABCI,TE*CI,TIMEI,       14*   10
     2TKMI,VELI,ZBTI                                                          14*   11
      COMMON /BMTL2/ICBM,JL2,KL2,IDECM,*SL2(50)                               14*   12
      EQUIVALENCE (*SL2(1),CBNTB),(*SL2(2),INT2),(*SL2(3),INTBM),             14*   13
     1(*SL2(4),INTLL),(*SL2(5),INTMM),(*SL2(6),INTBJ),                        14*   14
     2(*SL2(7),TIMEB)                                                         14*   15
      CALL UFBYT(INT2I,KL2,INT2)                                              14*   16
      CALL UFBYT(INTLI,KL2,INTLL)                                             14*   17
      CALL UFBYT(INTMI,KL2,INTBM)                                             14*   18
      RETURN                                                                  14*   19
      END                                                                     14*   20
```

2.6.64 ROUTINE Q

```
ROUTINE:  RTNQ

C   *   RTNQ                                                                  23    1
C                                                                             23    2
      SUBROUTINE RTNQ                                                         23    3
      INTEGER *CNT,QMAST,STRYD                                                23    4
      COMMON /BLK16 /  FMC          ,  FMARK        ,  MAST(9)     ,          23    5
     *  MMAST        ,  JMAST        ,  KMAST        ,  EMAST       ,          23    6
     *  HMAST        ,  AMAST        ,  QMAST        ,  IMAST       ,          23    7
     *  SPACE        ,  MPBKY        ,  QCNT                                  23    8
      COMMON /BLK15/  CHSET         ,  HBUFL        ,  IGPI        ,          23    9
     *  NNUMF        ,  NBMCH        ,  NCW22        ,  NC*D2       ,          23   10
     *  NC*RD        ,  NMANP        ,  NMCTL        ,  NMLNK       ,          23   11
     *  NMSCT        ,  NMVED        ,  NPATB        ,  NPB4        ,          23   12
     *  NMESP        ,  NSTM1        ,  TBSIZ        ,  TBYTE       ,          23   13
     *  CS           ,  DS           ,  FS           ,  NS          ,          23   14
     *  DS           ,  RS           ,  SS           ,  SCS                   23   15
      COMMON /BLK18/  CICTF(8)      ,  CTBDF(8)     ,  STRYD(8)    ,          23   16
     *  CONTB(62)    ,  CURBF(31)    ,  CYCLC(31)    ,  ENINT(496)  ,          23   17
     *  ENBFF(31)    ,  GGGT(124)    ,  GAWTP(31)    ,  GB*TP(31)   ,          23   18
     *  GLABC(124)   ,  GGGG(124)    ,  GUABC(124)   ,  INTDU(496)  ,          23   19
     *  SSSS(124)    ,  TK*(31)      ,  WRKBF(31)                             23   20
      COMMON /BLKLVS/ LEVLSA,SRTNS,END5,END51,MINCTS,MINSF,BPTIME,BPTIN       23   21
      INTEGER SRTNS,END5,END51,BPTIME,BPTIN                                   23   22
      COMMON /B2CONT/ WRKBFS(124),IB(124),IFA(31),ENTCYC(31),SPLIT(124),      23   23
     1 CORPN(31)                                                              23   24
      COMMON /BSJB1/ IDB*A                                                    23   25
C     NC*22=6*(NUM CONT) + 2                                                  23   26
      IF(IDB*A.NE.1) CALL RTNQ1                                               23   27
      IDB*A=1                                                                 23   28
      IR6=NC*22+1                                                             23   29
   10 CONTINUE                                                                23   30
C    SET STRYD FOR ALL CONTROLLERS                                            23   31
      STRYD(IR6)=1                                                            23   32
      IR6=IR6-2                                                               23   33
      IF(IR6.GE.3) GO TO 10                                                   23   34
C   SET RETURN CLOCK COUNT GREATER THAN 3 MINUTES                             23   35
      QCNT=180                                                                23   36
      END5=1                                                                  23   37
      MAST(QMAST)=2                                                           23   38
      RETURN                                                                  23   39
      END                                                                     23   40
```

2.6.65 SUBROUTINE Q1

```
ROUTINE:  RTNQ1

C     *   RTNQ1                                                          24    1
          SUBROUTINE RTNQ1                                               24    2
          INTEGER DMODE,EODC,FTAB,FTBWD                                  24    3
          COMMON /BLK13/  DWL(259)     ,  DWLP(17)     ,  EODC        ,  24    4
         1 FTAB, FTBWD, MOEIF(69)                                        24    5
          COMMON /BLK15/  CHSET        ,  HBUFL        ,  IGPI        ,  24    6
         * NNUMF        ,  NBMCH        ,  NCW22        ,  NCWDP       ,  24    7
         * NCARD        ,  NMAXP        ,  NMCTL        ,  NMLNK       ,  24    8
         * NMSCT        ,  NMVED        ,  NPATB        ,  NPBA        ,  24    9
         * NRESP        ,  NSTM1        ,  TBSIZ        ,  TBYTE       ,  24   10
         * CS           ,  DS           ,  FS           ,  NS          ,  24   11
         * QS           ,  RS           ,  SS           ,  SCS         ,  24   12
          COMMON /BLK24/ AMIST(138), CNDIS, DCF,                         24   13
         * DSW          ,  FMTOD        ,  FSTFL        ,  HLIDF       ,  24   14
         * HLIDT(96)    ,  NHDAY        ,  PRCOD        ,  PTN(745)    ,  24   15
         * SMTFL, SRDIS, THRSH, VMIST(138)                               24   16
          COMMON /BLK25/ AMCC(138), CMMAL(17), CMTAB(258),               24   17
         * DTTAB(258)   ,  DIS(17)      ,  DMALF(17)    ,  DMODE       ,  24   18
         * FLTAB(800)   ,  HRF          ,  MODES        ,  NAI         ,  24   19
         * NOFAL, SBAM(69), SECFC(4), SCDFC(4), VOL(138)                 24   20
          COMMON /COMJ/ LPBPT                                            24   21
C     OPEN SHUTDOWN FILE                                                 24   22
          IOPT=1                                                         24   23
          CALL CALOP(IOPT,NOFAL,EODC,NHDAY,FTAB,FTBWD,LPBPT)             24   24
C     SET TABLE INDEX TO 1                                               24   25
          IR6=1                                                          24   26
          J=1                                                            24   27
          CALL MOVER(J)                                                  24   28
C     SET LOOP COUNT                                                     24   29
          IR7=NMSCT                                                      24   30
       30 CONTINUE                                                       24   31
C     CHECK DESIRED MODE FOR ALL SECTIONS, TEST IF MANUAL                24   32
          CALL GETBY(DMODE,IR7,ITMP)                                     24   33
          IF(ITMP.NE.1) GO TO 40                                         24   34
C     YES, SET TO TOD                                                    24   35
          ITMP=ITMP+1                                                    24   36
          CALL PTBY(DMODE,IR7,ITMP)                                      24   37
       40 CONTINUE                                                       24   38
          IR7=IR7-1                                                      24   39
          IF(IR7.GE.1) GO TO 30                                          24   40
          J=2                                                            24   41
          CALL MOVER(J)                                                  24   42
C     SET IOPT FOR WRITE SHUTDOWN FILE                                   24   43
          IOPT=2                                                         24   44
          CALL CALOP(IOPT,NOFAL,EODC,NHDAY,FTAB,FTBWD,LPBPT)             24   45
          RETURN                                                         24   46
          END                                                            24   47
```

2.6.66 SUBROUTINE CALOP

```
ROUTINE:  CALOP,CLOSE,ERROR,FRAD,OPEN

      *   *   CALOP,CLOSE,ERROR,FRAD,OPEN                                    3    1
                DEF       CALOP                                              3    2
                DEF       CLOSE                                              3    3
                DEF       ERROR                                              3    4
                DEF       FRAD                                               3    5
                DEF       OPEN                                               3    6
                REF       LPBUF                                              3    7
                REF       OSETUP                                             3    8
                RES       1                                                  3    9
      I         RES       1                                                  3   10
                DATA      0                                                  3   11
                RES       1                                                  3   12
      J1        RES       1                                                  3   13
                DATA      0                                                  3   14
                RES       1                                                  3   15
      J2        RES       1                                                  3   16
                DATA      0                                                  3   17
                RES       1                                                  3   18
      J3        RES       1                                                  3   19
                DATA      0                                                  3   20
                RES       1                                                  3   21
      J4        RES       1                                                  3   22
                DATA      0                                                  3   23
                RES       1                                                  3   24
      J5        RES       1                                                  3   25
                DATA      0                                                  3   26
                RES       1                                                  3   27
      J6        RES       1                                                  3   28
                DATA      0                                                  3   29
      PTMP1     RES       1                                                  3   30
      CALOP     RES       0                                                  3   31
                LI,5      7                                                  3   32
                BAL,6     OSETUP                                             3   33
                GEN,8,24  1,I                                                3   34
                GEN,8,24  1,J1                                               3   35
                GEN,8,24  1,J2                                               3   36
                GEN,8,24  1,J3                                               3   37
                GEN,8,24  1,J4                                               3   38
                GEN,8,24  1,J5                                               3   39
                GEN,8,24  1,J6                                               3   40
                STM,15    PTMP1                                              3   41
                LM,2      *I                STORE I INTO REGISTER 2          3   42
                MTW,*1    2                                                  3   43
                BEZ       OPEN1             OPEN SHUTDOWN FILE               3   44
                LW,1      *J6                                                3   45
                LW,2      *J1               NUMBER OF SYSTEM FAILURES        3   46
                STW,2     LPBUF,1           STORE INTO BUFFER                3   47
                AI,1      1                 INCREMENT BUFFER COUNTER         3   48
                LW,3      *J2               END OF DAY COUNT                 3   49
                STW,3     LPBUF,1           STORE INTO BUFFER                3   50
                AI,1      1                 INCREMENT BUFFER COUNTER         3   51
                LW,4      *J3               NUMBER OF HOLIDAYS               3   52
                STW,4     LPBUF,1           STORE INTO BUFFER                3   53
                AI,1      1                 INCREMENT BUFFER COUNTER         3   54
                LW,5      *J4               FAILURE TABLE INDICES            3   55
                STW,5     LPBUF,1           STORE INTO BUFFER                3   56
                AI,1      1                 INCREMENT BUFFER COUNTER         3   57
                LW,6      *J5               FAILURE TABLE INDICES*           3   58
                STW,6     LPBUF,1           STORE INTO BUFFER                3   59
                CAL1,1    WRTRAD            WRITE SHUTDOWN FILE              3   60
      QEXIT     RES       0                                                  3   61
                CAL1,1    CLOSE                                              3   62
                CAL1,5    RLSKING           RELEASE PROGRAM                  3   63
                CAL1,9    1                 EXIT                             3   64
      ERROR     RES       0                                                  3   65
                CAL1,2    ERRFPT            TYPE OUT RAD ERROR               3   66
                B         QEXIT                                              3   67
      OPEN1     RES       0                                                  3   68
                CAL1,1    OPEN              OPEN SHUTDOWN FILE               3   69
                B         *PTMP1                                             3   70
      WRTRAD    GEN,8,24  17,FRAD                                            3   71
                GEN,4,4,4,16,4  15,D,0,1,8                                   3   72
                DATA      ERROR                                              3   73
                DATA      ERROR                                              3   74
                DATA      LPBUF,4*18DD                                       3   75
      OPEN      GEN,8,24  20,FRAD                                            3   76
                DATA      0                                                  3   77
      CLOSE     GEN,8,24  21,FRAD                                            3   78
                DATA      0                                                  3   79
      ERRFPT    GEN,8,24  2,D                                                3   80
                GEN,8,24  8,16                                               3   81
                DATA      MESS                                               3   82
      RLSKING   GEN,8,24  X'DB',0                                            3   83
                TEXT      'KING  '                                           3   84
      MESS      TEXTC     'I/O ERROR ON SHUTDOWN FILE (D4,ENDDAY)'           3   85
      FRAD      RES       0                                                  3   86
                GEN,8,24  7,1                                                3   87
                GEN,8,16,8  5,9,D           TEMP FIX (D3*8, NO D4)           3   88
                DATA      0,D,0                                              3   89
                TEXT      'ENDDAY'                                           3   90
                END                                                          3   91
```

2.6.67 SUBROUTINE MOVER

```
ROUTINE: MOVER

C  *  MOVER                                                                  2S    1
      SUBROUTINE MOVER(J)                                                    2S    2
      INTEGER CTODE,CICTF,CMMAL,CS,DATE,DIS,DMALF,DMODE,DS,                  2S    3
     1  FLTAB,FS,HLIDT,LPBUF,SECFC,SCDFC,SS                                 2S    4
      COMMON /BLK1S/  CHSET       ,  MBUFL       ,  IGPI        ,          2S    5
     * NNUMF        ,  NBMCH       ,  NCW22       ,  NCWD2       ,          2S    6
     * NCWRD        ,  NMANP       ,  NMCTL       ,  NMLNK       ,          2S    7
     * NMSCT        ,  NMVED       ,  NPATB       ,  NPB4        ,          2S    8
     * NNESP        ,  NSTM1       ,  TBSIZ       ,  TBYTE       ,          2S    9
     * CS           ,  DS          ,  FS          ,  NS          ,          2S   10
     * QS           ,  RS          ,  SS          ,  SCS                    2S   11
      COMMON /BLK15/  CICTF(8)    ,  CTODF(8)    ,  STBYD(8)    ,          2S   12
     * CMNTB(62)    ,  CURBF(31)   ,  CYCLC(31)   ,  ENINT(496)  ,          2S   13
     * ENBFF(31)    ,  GBGT(124)   ,  GAWTP(31)   ,  GBATP(31)   ,          2S   14
     * GLABC(124)   ,  GBGG(124)   ,  GUABC(124)  ,  INTDJ(496)  ,          2S   15
     * SSSS(124)    ,  TKM(31)     ,  WRKBF(31)                            2S   16
      COMMON /BLK24/ AHIST(138), CNDIS, DCF,                                 2S   17
     * DMA          ,  FMTBD       ,  FSTFL       ,  HLIDF       ,          2S   18
     * HLIDT(96)    ,  NHDAY       ,  PRCBD       ,  PTN(745)    ,          2S   19
     * SMTFL, SRDIS, THRSH, VHIST(138)                                       2S   20
      COMMON /BLK2S/ AMCC(138), CMMAL(17), CMTAB(2S8),                       2S   21
     * DTTAB(2S8)   ,  DIS(17)     ,  DMALF(17)   ,  DMODE       ,          2S   22
     * FLTAB(80D)   ,  HRF         ,  MBDES       ,  NAI         ,          2S   23
     * NBFAL, SBAM(69), SECFC(4), SCDFC(4), VBL(138)                         2S   24
      COMMON /BLK26/ DATE(3)      ,  PRVD(3)     ,  LPBUF(1806)             2S   25
      COMMON /COMJ/ LPBPT                                                    2S   26
      EQUIVALENCE (K,LPBPT)                                                  2S   27
      GO TO (1D,3D),J                                                        2S   28
   10 CONTINUE                                                               2S   29
      ICS=CS+1                                                               2S   30
      DO 15 I=1,ICS                                                          2S   31
      N=2*I                                                                  2S   32
      LPBUF(I)=CTBDF(N)                                                      2S   33
   15 CONTINUE                                                               2S   34
      K=ICS                                                                  2S   35
      DO 2S I=1,ICS                                                          2S   36
      N=2*I                                                                  2S   37
      L=K+I                                                                  2S   38
      LPBUF(L)=CICTF(N)                                                      2S   39
   25 CONTINUE                                                               2S   40
      K=K+ICS                                                                2S   41
      GO TO 1SO                                                              2S   42
   30 CONTINUE                                                               2S   43
      IDS=DS+1                                                               2S   44
      DO 3S I=1,IDS                                                          2S   45
      L=K+I                                                                  2S   46
      LPBUF(L)=CMMAL(I)                                                      2S   47
   35 CONTINUE                                                               2S   48
      K=K+IDS                                                                2S   49
      DO 4S I=1,IDS                                                          2S   50
      L=K+I                                                                  2S   51
      LPBUF(L)=DMALF(I)                                                      2S   52
   4S CONTINUE                                                               2S   53
      K=K+IDS                                                                2S   54
      DO S5 I=1,IDS                                                          2S   55
      L=K+I                                                                  2S   56
      LPBUF(L)=DIS(I)                                                        2S   57
   55 CONTINUE                                                               2S   58
      K=K+IDS                                                                2S   59
      INS=NS+1                                                               2S   60
      DO 65 I=1,INS                                                          2S   61
      L=K+I                                                                  2S   62
      LPBUF(L)=SECFC(I)                                                      2S   63
   65 CONTINUE                                                               2S   64
      K=K+INS                                                                2S   65
      DO 75 I=1,INS                                                          2S   66
      L=K+I                                                                  2S   67
      LPBUF(L)=SCDFC(I)                                                      2S   68
   75 CONTINUE                                                               2S   69
      K=K+INS                                                                2S   70
      LPBUF(K+1)=DMODE                                                       2S   71
      K=K+1                                                                  2S   72
      DO 9S I=1,3                                                            2S   73
      L=K+I                                                                  2S   74
      LPBUF(L)=DATE(I)                                                       2S   75
   9S CONTINUE                                                               2S   76
      K=K+3                                                                  2S   77
      DO 105 I=1,96                                                          2S   78
      L=K+I                                                                  2S   79
      LPBUF(L)=FLTAB(I)                                                      2S   80
  105 CONTINUE                                                               2S   81
      K=K+96                                                                 2S   82
      IFS=FS+1                                                               2S   83
      DO 11S I=1,IFS                                                         2S   84
      L=K+I                                                                  2S   85
      LPBUF(L)=HLIDT(I)                                                      2S   86
  11S CONTINUE                                                               2S   87
      K=K+IFS                                                                2S   88
  150 CONTINUE                                                               2S   89
      RETURN                                                                 2S   90
      END                                                                    2S   91
```

2.6.68 ROUTINE R

```
ROUTINE: RTNR

C     *   RTNR                                                                16    1
      SUBROUTINE RTNR                                                         16    2
      COMMON /BLK17/ ADVNI(8)   , CICBI(8)   , CABGI(8)   ,                   16    3
     * IADPI(8)    , CNTDR(124) , CNTNM      , IL2        ,                   16    4
     * INTMI(31)   , INTLI(31)  , INTBI(32)  , KL1        ,                   16    5
     * STBTI(32), TIMEI(32), QV8KI(69)                                       16    6
      COMMON /BLK19/ CC2(129), DFAIL(69), DBF(17),                            16    7
     * MII(31)     , RA#BC(258) , RA#SP(25A) , BTC        ,                   16    8
     * TSTRT(516)                                                            16    9
C  ** ROUTINE RTN(TRANSFORMATION FROM COMPUTER CONTROL TO STANDBY)            16   10
      COMMON/BITL2/BITAR(6*0)                                                 16   11
      DIMENSION ADVNM(32),ABG(32),APB(32),AUTBF(32),CICBP(32),                16   12
     1CICEF(32),CICTF(32),CTBDF(32),CMALF(32),CPABG(32),FSTCF(32),            16   13
     2HBLD(32),IADVP(32),INT1S(32),SEMSK(32),SPLCM(32),STBYD(32),             16   14
     3STRTA(32),TRNSF(32),CICSF(32)                                           16   15
      EQUIVALENCE                                                             16   16
     1(ADVNM,BITAR(  1)),(ABG  ,BITAR( 33)),(APB  ,BITAR( 65)),               16   17
     2(AUTBF,BITAR( 97)),                                                     16   18
     1(CICBP,BITAR(129)),(CICEF,BITAR(161)),(CICSF,BITAR(193)),               16   19
     1(CICTF,BITAR(225)),(CTBDF,BITAR(257)),(CMALF,BITAR(289)),               16   20
     3(CPABG,BITAR(321)),(FSTCF,BITAR(353)),(HBLD ,BITAR(385)),               16   21
     4(IADVP,BITAR(417)),(INT1S,BITAR(449)),(SEMSK,BITAR(481)),               16   22
     5(SPLCM,BITAR(513)),(STRTA,BITAR(545)),(STBYD,BITAR(577)),               16   23
     6(TRNSF,BITAR(609))                                                      16   24
      COMMON /BITL2/ICBN,JL2,KL2,IDECR,WSL2(50)                               16   25
      INTEGER ADVNM,ABG,APB,AUTBF,BPSIF,BTRNF,CICBP,CICEF,CICSF,              16   26
     1CICTF,CTBDF,CMALF,CPABG,FSTCF,GAI,HBLD,SEMSK,SPLCM,STBYD,               16   27
     2STRTA,TRNSF                                                             16   28
      INTEGER AMBPM,CBNTB,CNTLN,CYCLC,ENINT,GAABC,GA#TP,GB#TP,                16   29
     1GLABC,GMABC,LDSET,QCICT,QQQ,QQRR,QV8K,RRR,STBTM,SABCT,TE#CT,TIMEB,      16   30
     2TKM,VBL,VBT                                                             16   31
      INTEGER AMBMI,CBNTI,CNTLI,CYCLI,ENINI,GAABI,GA#TI,GB#TI,GUABI,          16   32
     1GLABI,GMABI,QCICI,QQI,QQRRI,QV8KI,RRRI,STBTI,SABCI,TE#CI,TIMEI,         16   33
     2TKMI,VBLI,VBTI                                                          16   34
      EQUIVALENCE (STBTM,WSL2(1))                                             16   35
      DO 800 II=1,32                                                          16   36
      KL2=ICBN+II                                                             16   37
      IF (STBYD(II).EQ.0) GO TO 800                                           16   38
      IF (HBLD(II).EQ.0) GO TO 800                                            16   39
      TRNSF(II)=0                                                             16   40
      SPLCM(II)=0                                                             16   41
      CALL UPBYT(STBTI,KL2,STBTM)                                             16   42
      IF (STBTM.GT.0) GO TO 630                                               16   43
      STBTM=0                                                                 16   44
      IF (STRTA(II).EQ.1) STBTM=IDECR                                         16   45
      GO TO 790                                                               16   46
  630 STBTM=STBTM+IDECR                                                       16   47
      IF (STBTM.LT.16) GO TO 790                                              16   48
      CALL PKBYT (MII,KL2,0)                                                  16   49
      HBLD(II)=0                                                              16   50
      CICEF(II)=0                                                             16   51
      CICTF(II)=0                                                             16   52
  780 STBTM=0                                                                 16   53
      STBYD(II)=0                                                             16   54
  790 CALL PKBYT(STBTI,KL2,STBTM)                                             16   55
  800 CONTINUE                                                                16   56
      RETURN                                                                  16   57
      END                                                                     16   58
```

2.6.69 ROUTINE S

```
ROUTINE: RTNS

C   *   RTNS                                                                17    1
      SUBROUTINE RTNS                                                       17    2
C   ** THE PURPOSE OF THIS ROUTINE IS TO COMPUTE THE REQUIRED PARAMETERS    17    3
C   ** TO ALLOW A SMOOTH TRANSITION FROM ONE AREA PATTERN TO ANOTHER        17    4
      COMMON /BLK7 /A8GI(16)    , INTHI(31)  , INT2I(31)  ,                 17    5
     * KCTC(17),K3PHI(31),STUPF,NQL(31)                                     17    6
      COMMON /BLK14/ CLENG      , DTLNG      , CMLNG      ,                 17    7
     * DUMY1       , DUMY2,                                                17    8
     * CNTLI(372), ENTFL(5), KCL(17), KCTF(17),                            17    9
     * KCSF(17), NMVAI(31), SMSKI(8),                                      17   10
     * VRINI(123)  , LNKPT(64)                                             17   11
      COMMON /BLK17/ ADVNI(8)   , CICBI(8)   , CA8GI(8)   ,                17   12
     * IADPI(8)    , CNTDR(124) , CNTNM      , IL2        ,                17   13
     * INTMI(31)   , INTLI(31)  , INTBI(32)  , KL1        ,                17   14
     * STBTI(32), TIMEI(32), QV8KI(69)                                     17   15
      COMMON /BLK18/ CICTI(8)   , CT8DI(8)   , ST8DI(8)   ,                17   16
     * CONTI(62)   , CUR8I(31)  , CYCLI(31)  , ENINI(496) ,                17   17
     * EN8FI(31)   , GAABI(124) , GAWTI(31)  , GBWTI(31)  ,                17   18
     * GLA8I(124)  , GMABI(124) , GUABI(124) , INTDI(496) ,                17   19
     * SA8CI(124)  , TKMI(31)   ,WRK8I(31)                                 17   20
      COMMON /BLK19/ CC2(129), DFAIL(69), O8F(17),                          17   21
     * MII(31)     , RAW8C(258) , RAWSP(256) ,BTC                          17   22
     * TSTRT(516)                                                          17   23
      COMMON/BITL2/BITAR(640)                                             17   24
      DIMENSION ADVNM(32),A8G(32),AP8(32),AUT8F(32),CICBP(32),            17   25
     1CICEF(32),CICTF(32),CT8DF(32),CMALF(32),CPA8G(32),FSTCF(32),        17   26
     2H8LD(32),IADVP(32),INT1S(32),SEMSK(32),SPLCH(32),ST8YD(32),         17   27
     3STRTA(32),TRNSF(32),CICSF(32)                                       17   28
      EQUIVALENCE                                                         17   29
     1(ADVNM,BITAR(  1)),(A8G  ,BITAR( 33)),(AP8  ,BITAR( 65)),          17   30
     2(AUT8F,BITAR( 97)),                                                 17   31
     1(CICBP,BITAR(129)),(CICEF,BITAR(161)),(CICSF,BITAR(193)),           17   32
     1(CICTF,BITAR(225)),(CT8DF,BITAR(257)),(CMALF,BITAR(289)),           17   33
     3(CPA8G,BITAR(321)),(FSTCF,BITAR(353)),(H8LD ,BITAR(385)),           17   34
     4(IADVP,BITAR(417)),(INT1S,BITAR(449)),(SEMSK,BITAR(481)),           17   35
     5(SPLCH,BITAR(513)),(STRTA,BITAR(545)),(ST8YD,BITAR(577)),           17   36
     6(TRNSF,BITAR(609))                                                  17   37
      COMMON /BYTL2/ICON,JL2,KL2,IOECR,WSL2(50)                           17   38
      COMMON /J2CONT/ WRK8FS(124),I8(124),IEA(31),ENTCYC(31)              17   39
      INTEGER ADVNM,A8G,AP8,AUT8F,BPSIF,BTRNF,CICBP,CICEF,CICSF,          17   40
     1CICTF,CT8DF,CMALF,CPA8G,FSTCF,GAI,H8LD,SEMSK,SPLCH,ST8YD,           17   41
     2STRTA,TRNSF                                                         17   42
      INTEGER AM8PN,C8NTB,CNTLN,CYCLC,ENINT,GAABC,GAWTP,GBWTP,            17   43
     1GLABC,GMABC,LDSET,JCICT,JQQ,QQRR,QV8K,RRR,STBTM,SABCT,TEWCT,TIME8,  17   44
     2TKM,V8L,V8T                                                         17   45
      INTEGER AM8MI,C8NTI,CNTLI,CYCLI,ENINI,GAABI,GAWTI,GBWTI,GUABI,      17   46
     1GLABI,GMABI,JCICI,JQQI,QQRMI,QV8KI,RRRI,STBTI,SABCI,TEWCI,TIMEI,    17   47
     2TKMI,V8LI,V8TI                                                      17   48
      INTEGER WRK8I,EN8FI,CUR8I,VRINI                                     17   49
      INTEGER CLENG,CNTDR,EMAST,STUPF,ENTFL                               17   50
      INTEGER CUR8F,EN8FF,VRINT,WRK8F                                     17   51
      DIMENSION GAABC(4),GMA8C(4),SA8CT(4)                                17   52
      EQUIVALENCE (WSL2(9),CYCLC),(WSL2(10),GAABC(1)),                    17   53
     1(WSL2(14),GMABC(1)),(WSL2(18),K3PH),(WSL2(19),NMVAR),               17   54
     2(WSL2(20),SABCT(1)),(WSL2(24),TKM)                                  17   55
      EQUIVALENCE (WSL2(30),ENINT,INTDU),(WSL2(31),IR6),(WSL2(32),VARD),  17   56
     1(WSL2(33),VAR1),(WSL2(34),VAR2),(WSL2(35),IR1S),(WSL2(36),IC8NS),   17   57
     2(WSL2(37),IM7),(WSL2(38),IR14),(WSL2(39),IR13),(WSL2(40),IR5),      17   58
     3(WSL2(41),IM12),(WSL2(42),IR11),(WSL2(43),EN8FF),(WSL2(44),         17   59
     4VRINT)                                                              17   60
      INTEGER VARD,VAR1,VAR2                                              17   61
      INTEGER WRKF,EN8F                                                   17   62
      INTEGER  VRNT1,VRNT2,VRNT3                                          17   63
      CALL UNPS                                                           17   64
      IR5=16*(KL2-1)+1                                                    17   65
      JJ=4*KL2-3                                                          17   66
      CALL UPBYT(VRINI,JJ,VRNT1)                                          17   67
      CALL UPBYT(VRINI,JJ+1,VRNT2)                                        17   68
      CALL UPBYT(VRINI,JJ+2,VRNT3)                                        17   69
      VARD=IR6+VRNT1                                                      17   70
      VAR1=IR6+VRNT2                                                      17   71
      VAR2=IR6+VRNT3                                                      17   72
C   ** COMPUTE DELTA OFFSET,THE DIFFERENCE BETWEEN THE PRESENT OFFSET     17   73
C   ** AND THE DESIRED OFFSET                                            17   74
      IR15=EN8FF-KCTC(CYCLC)                                              17   75
C   ** IF THIS IS GREATER THAN +3 ADD IN CYCLE LENGTH                     17   76
      IF(IR15.LT.-6) IR1S=IR15+KCL(CYCLC)                                 17   77
C   ** GET16 ENTRY DURATION VALUES AND STORE IN WORKING ARRAY             17   78
       CALL XBYTS(ENINI,INTDI,IR6,16)                                     17   79
      CALL UPBYT(ENTCYC,KL2,ICY)                                          17   80
      CALL PKBYT(CYCLI,KL2,ICY)                                           17   81
C   ** TEST ABSOLUTE DELTA OFFSET TO CHECK IF GREATER THAN 3 SECONDS      17   82
C   ** IF NOT NO TRANSITIONAL CYCLES WILL BE REQUIRED                     17   83
      IF(IABS(IR15).LE.6) GO TO 1800                                      17   84
C   ** TEST DELTA OFFSET AGAINST TRM(MINIMUM CYCLE LENGTH)                17   85
      IF(IR15.GT.TKM) GO TO 1110                                          17   86
C   ** NO, NOT GREATER, ADD IN CYCLE LENGTH TO DELTA OFFSET               17   87
      IR1S=IR15+KCL(CYCLC)                                                17   88
C   ** TEST IF DELTA+OFFSET+KCL > 2+TKM                                   17   89
      IF (IR15.LE.2*TKM) GO TO 1110                                       17   90
C   ** IF SO, HALVE DELTA+OFFSET&KCL                                      17   91
      IR1S=IR1S/2                                                         17   92
C   ** SET 2 IN IR14 AND STORE IN MI                                      17   93
      IR14=2                                                              17   94
      GO TO 1160                                                          17   95
C   ** IF NOT, SET 1 IN IR14 AND STORE IN MI                              17   96
 1110 IR14=1                                                              17   97
```

```
C  ** AFTER SETTING MI TO PREDETERMINED VALUE, DETERMINE STARTING INDEX  17   98
C  ** IF 3 PHASE CONTROLLER SET STARTING INDEX TO 3, OTHERWISE SET       17   99
C  ** STARTING INDEX TO 2                                                17  100
 1160 CONTINUE                                                          17  101
      CALL PKBYT(MII,KL2,IR14)                                          17  102
      IR13=2                                                            17  103
      IF (K3PH.NE.1) GO TO 1230                                         17  104
      IR13=3                                                            17  105
 1230 IR7=JJ +IR13                                                      17  106
C  ** IF IR13 GREATER THAN OR = TO THE NUMBER OF ADJUSTABLE INTERVALS    17  107
C  ** TEST IF END. IF YES GET OUT OF LOOP                                17  108
C  ** SET MINIMUM ALLOWABLE DURATIONS FOR A,B, OR C PHASE GREEN RESPECT  17  109
 1250 IF (IR13.GE.NMVAR) GO TO 1350                                     17  110
C  ** IVELY INTO INTDU.                                                 17  111
      INTDU=GMABC(IR13)                                                 17  112
      CALL UPBYT(VRINI,IR7,VRINT)                                       17  113
      IR5=IR6+VRINT                                                     17  114
      CALL PKBYT(INTDI,IR5,INTDU)                                       17  115
      IR7=IR7+1                                                         17  116
      IR13=IR13+1                                                       17  117
      GO TO 1250                                                        17  118
C  ** CHECK IF TYPE OF CONTROLLER(K3PH) IS TYPE B(NON OVERLAPPING        17  119
C  ** MOVEMENTS.  IF YES, GO TO 3 PHASE LOOP                            17  120
 1350 IF (K3PH.EQ.1) GO TO 1900                                         17  121
C  ** IR15=DOFF=SABCT                                                   17  122
      IR15=IR15=SABCT(4)                                                17  123
C  ** SAVE IR15 FOR LATER                                               17  124
      IR12=IR15                                                         17  125
 1430 CALL UPBYT(ENINI,VAR1,ENINT)                                      17  126
      IR15=IR15+(SABCT(2)+ENINT)                                        17  127
      IR15=((IR15/GAABC(1))*2+1)/2                                      17  128
      IF(IR15.LE.GMABC(2)) GO TO 2180                                   17  129
      IR12=IR12-IM15                                                    17  130
      IF(IR12.LE.GMABC(1)) GO TO 2370                                   17  131
      INTDU=IR15+SABCT(2)                                               17  132
      CALL PKBYT(INTDI,VAR1,INTDU)                                      17  133
      INTDU=IR12+SABCT(1)                                               17  134
      CALL PKBYT(INTDI,VARD,INTDU)                                      17  135
      GO TO 2320                                                        17  136
C  ** SET WORKING OFFSET EQUAL TO ENTRY OFFSET                          17  137
 1800 CONTINUE                                                          17  138
      CALL PKBYT(WRKBI,KL2,ENOFF)                                       17  139
C  ** STORE FIRST INTERVAL DURATION & DOFF IN COUNTDOWN REGISTER         17  140
      CALL UPBYT(INTDI,IR6,INTDU)                                       17  141
      CNTDR(KL2)=IR15+INTDU                                             17  142
C  ** ZERO OUT MI, THE NUMBER OF TRANSITION CYCLES REMAINING            17  143
      CALL PKBYT(MII,KL2,0)                                             17  144
C  ** EXIT TO ROUTINE T                                                 17  145
      RETURN                                                            17  146
 1900 IR15=IR15-SABCT(4)                                                17  147
      IR12=IR15                                                         17  148
      CALL UPBYT(ENINI,VAR2,ENINT)                                      17  149
      IR15=(SABCT(3)+ENINT)/GAABC(3)*2+IR15                             17  150
      IR15=(IR15+1)/2                                                   17  151
      IF(IR15.GT.GMABC(3)) GO TO 2510                                   17  152
      IR15=GMABC(3)                                                     17  153
      INTDU=IR15+SABCT(3)                                               17  154
 2100 IR12=IR12-IM15                                                    17  155
      CALL PKBYT(INTDI,VAR2,INTDU)                                      17  156
      IR15=IR12                                                         17  157
      GO TO 1430                                                        17  158
 2180 INTDU=IR12+SABCT(1)+GMABC(2)                                      17  159
      CALL PKBYT(INTDI,VARC,INTDU)                                      17  160
 2270 INTDU=GMABC(2)+SABCT(2)                                           17  161
      CALL PKBYT(INTDI,VAR1,INTDU)                                      17  162
 2320 CALL UPBYT(INTDI,IR6,INTDU)                                       17  163
      CNTDR(KL2)=INTDU                                                  17  164
      RETURN                                                            17  165
 2370 INTDU=GMABC(1)+SABCT(1)                                           17  166
      CALL PKBYT(INTDI,VARC,INTDU)                                      17  167
      IR12=IR12+IM15                                                    17  168
      INTDU=IR12+SABCT(2)+GMABC(1)                                      17  169
      CALL PKBYT(INTDI,VAR1,INTDU)                                      17  170
      GO TO 2320                                                        17  171
 2510 IR11=IR12+GMABC(2)+GMABC(1)                                       17  172
      IF (IR15.GE.IR11) GO TO 2630                                      17  173
      GO TO 2100                                                        17  174
 2630 INTDU=GMABC(1)+SABCT(1)                                           17  175
      CALL PKBYT(INTDI,VARD,INTDU)                                      17  176
      INTDU=IR12+GMABC(1)+SABCT(3)+GMABC(2)                             17  177
      CALL PKBYT(INTDI,VAR1,INTDU)                                      17  178
      GO TO 2270                                                        17  179
      END                                                               17  180
```

2.6.70 SUBROUTINE MBYTS

```
ROUTINE:  MBYTS

      C   *   MBYTS                                                    22    1
          SUBROUTINE MBYTS(A,B,I,N)                                    22    2
      C                                                                22    3
      C             THIS ROUTINE MOVES N BYTES                         22    4
      C             STARTING AT BYTE I OF A                            22    5
      C             GOING TO BYTE 1 OF B                               22    6
      C                                                                22    7
          INTEGER A,B                                                  22    8
      S      LW,3   =I                                                 22    9
      S      AI,3   =1                                                 22   10
          DO 10 J=1,N                                                  22   11
      S      LB,5   =A,3                                               22   12
      S      STB,5  =B,3                                               22   13
      S      AI,3   1                                                  22   14
      S      AI,4   1                                                  22   15
       10 CONTINUE                                                     22   16
          RETURN                                                       22   17
          END                                                          22   18
```

2.6.71 SUBROUTINE UNPS

```
RBUTINE:  UNPS

C  *   UNPS                                                                  18    1
       SUBROUTINE UNPS                                                       18    2
       COMMON /BLK7 /ABGI(16)    , INTHI(31)  , INT2I(31)  ,                 18    3
      * KCTC(17),K3PHI(31),STUPF,NQL(31)                                     18    4
       COMMON /BLK14/ CLENG      , DTLNG      , CMLNG      ,                 18    5
      * DUMY1          , DUMY2,                                              18    6
      * CNTLI(372), ENTFL(5), KCL(17), KCTF(17),                            18    7
      * KCSF(17), NMVAI(31), SMSKI(8),                                      18    8
      * VRINI(123)  , LNKPT(64)                                             18    9
       COMMON /BLK18/ CICTI(8)   , CTBDI(8)   , STBDI(8)   ,                18   10
      * CONTI(62)    , CURBI(31)  , CYCLI(31)  , ENINI(496) ,               18   11
      * ENBFI(31)    , GAABI(124) , GA*TI(31)  , GB*TI(31)  ,               18   12
      * GLABI(124)   , GMABI(124) , GUABI(124) , INTDI(496) ,               18   13
      * SABCI(124)   , TKMI(31)   ,*RKBI(31)                                18   14
       INTEGER AMBPI,CONTI,CNTLI,CYCLI,ENINI,GAABI,GA*TI,GB*TI,GUARI,       18   15
      1GLABI,GMABI,QCICI,QQQI,QQRRI,QVBKI,RRRI,STBTI,SABCI,TE*CI,TIMEI,     18   16
      2TKMI,VBLI,VBTI                                                       18   17
       INTEGER ENBFI                                                        18   18
       COMMON /BYTL2/ICON,JL2,KL2,IDECR,*SL2(50)                            18   19
       INTEGER CURBF,ENBFF,VRINT,*RKBF                                      18   20
       DIMENSION GAABC(4),GMABC(4),SABCT(4)                                 18   21
       EQUIVALENCE (*SL2(9),CYCLC),(*SL2(10),GAABC(1)),                     18   22
      1(*SL2(14),GMABC(1)),(*SL2(18),K3PH),(*SL2(19),NMVAR),                18   23
      2(*SL2(20),SABCT(1)),(*SL2(24),TKM),(*SL2(43),ENBFF)                  18   24
       INTEGER GAABC,GMABC,SABCT,CYCLC,TKM                                  18   25
       I=4*KL2-3                                                            18   26
       DO 10 J=1,4                                                          18   27
       CALL UPBYT(GAABI,I,GAABC(J))                                         18   28
       CALL UPBYT(GMABI,I,GMABC(J))                                         18   29
       CALL UPBYT(SABCI,I,SABCT(J))                                         18   30
    10 I=I+1                                                                18   31
       CALL UPBYT(CYCLI,KL2,CYCLC)                                          18   32
       CYCLC=CYCLC+1                                                        18   33
       CALL UPBYT(K3PHI,KL2,K3PH)                                           18   34
       CALL UPBYT(NMVAI,KL2,NMVAR)                                          18   35
       CALL UPBYT(TKMI,KL2,TKM)                                             18   36
       CALL UPBYT(ENBFI,KL2,ENBFF)                                          18   37
       RETURN                                                               18   38
       END                                                                  18   39
```

2.6.72 ROUTINE T

```
ROUTINE: RTNT

C     *   RTNT                                                                19    1
      SUBROUTINE RTNT                                                         19    2
C     ** THE PRIMARY PURPOSE OF THIS ROUTINE IS TO ESTABLISH AND IMPOSE       19    3
C     ** THE NECESSARY TRANSITION CYCLES TO TRANSFORM A CONTROLLER FROM       19    4
C     ** STANDBY TO COMPUTER CONTROL, THEN TO STEP THESE CONTROLLER THROUGH   19    5
C     ** THEIR INTERVALS WITHIN A COMPLETE CYCLE.                             19    6
      COMMON /BLK7 /A0GI(16)    , INTMI(31)  , INT2I(31)  ,                   19    7
     * KCTC(17),KBPHI(31),STOPF,NQL(31)                                      19    8
      COMMON /BLK14/ CLENG      , DTLNG      , CMLNG      ,                   19    9
     * DUMY1       , DUMY2,                                                  19   10
     * CNTLI(372), ENTFL(5), KCL(17), KCTF(17),                              19   11
     * KCSF(17), NMVAI(31), SMSK1(8),                                        19   12
     * VRINI(123)  , LNKPT(64)                                               19   13
      COMMON /BLK17/ ADVNI(8)   , C1CBI(6)   , CA0GI(8)   ,                 19   14
     * IADFI(8)    , CNTDR(124) , CNTNM      , IL2        ,                 19   15
     * INTMI(31)   , INTLI(31)  , INT0I(32)  , KL1        ,                 19   16
     * STBTI(32), TIMEI(32), QV0KI(69)                                       19   17
      COMMON /BLK18/ CICTI(8)   , CT0DI(8)   , STBDI(8)   ,                 19   18
     * CNTI(62)   , CUR0I(31)  , CYCLI(31)  , ENINI(496) ,                   19   19
     * ENBFI(31)  , GAABI(124) , GAWTI(31)  , GBWTI(31)  ,                   19   20
     * GLABI(124) , GMABI(124) , GUABI(124) , INTDI(496) ,                   19   21
     * SABCI(124) , TKMI(31)   ,WRK0I(31)                                    19   22
      COMMON /BLK19/ CC2(129), DFAIL(69), D0F(17),                          19   23
     * MII(31)     , RAW0C(258) , RAWSP(258) ,RTC        ,                  19   24
     * TSTRT(516)                                                            19   25
      COMMON/BLK20/AWR(14),PIA(6),RCM(2),MS9(14),AP0M1(14),CPN0U,CPN0T,      19   26
     * MARR(540)   , HMAP(2)     , JCNT       , KCNT       ,                 19   27
     * MC15        , WMSBF       , CLOCK      , WMINF      ,                 19   28
     * MINCT       , TAB(3)      , N0N0(8)                                  19   29
      COMMON /32CMNT/ WRK0FS(124),I9(124),IEA(31),ENTCYC(31),SPLIT(124),     19   30
     1 CORR(31)                                                             19   31
      EQUIVALENCE (AUT0I,ADVNI(2))    ,(CICEI,CIC0I(2))    ,               19   32
     *           (GAII,AGR(2))        ,(M0LDI,MS0(2))                      19   33
      DIMENSION M0LDI(8)                                                    19   34
      COMMON/BITL2/BITAR(640)                                               19   35
      DIMENSION ADVNM(32),A0G(32),AP0(32),AUT0F(32),CIC0P(32),              19   36
     1CICEF(32),CICTF(32),CT0DF(32),CMALF(32),CPA0G(32),FSTCF(32),          19   37
     2M0LD(32),IAUVP(32),INT1S(32),SEMSK(32),SPLCM(32),STBYD(32),           19   38
     3STRTA(32),TMNSF(32),CICSF(32)                                         19   39
      EQUIVALENCE                                                           19   40
     1(ADVNM,BITAR(  1)),(A0G  ,BITAR( 33)),(AP0  ,BITAR( 65)),            19   41
     2(AUT0F,BITAR( 97)),                                                   19   42
     1(C1C0P,BITAR(129)),(CICEF,BITAR(161)),(CICSF,BITAR(193)),             19   43
     1(CICTF,BITAR(225)),(CT0DF,BITAR(257)),(CMALF,BITAR(289)),             19   44
     3(CPA0G,BITAR(321)),(FSTCF,BITAR(353)),(M0LD ,BITAR(385)),             19   45
     4(IADVP,BITAR(417)),(INT1S,BITAR(449)),(SEMSK,BITAR(481)),             19   46
     5(SPLCM,BITAR(513)),(STRTA,BITAR(545)),(STBYD,BITAR(577)),             19   47
     6(TMNSF,BITAR(609))                                                    19   48
      COMMON /BYTL2/IC0N,JL2,KL2,IDECR,WSL2(50)                             19   49
      INTEGER ADVNM,A0G,AP0,AUT0F,BPSIF,BTRNF,CIC0P,CICEF,CICSF,            19   50
     1CICTF,CT0DF,CMALF,CPA0G,FSTCF,GAI,M0LD,SEMSK,SPLCM,STBYD,             19   51
     2STRTA,TRNSF                                                           19   52
      INTEGER AMBMN,C0NT0,CNTLN,CYCLC,ENINT,GAABC,GAWTP,GBWTP,              19   53
     1GLABC,GMABC,LDSET,QCICT,QQQ,QQRR,QV0K,RRR,STBTM,SABCT,TEWCT,TIME0,    19   54
     2TKM,V0L,V0T                                                           19   55
      INTEGER AMBMI,C0NTI,CNTLI,CYCLI,ENINI,GAABI,GAWTI,GBWTI,GUABI,        19   56
     1GLABI,GMABI,QCICI,QQQI,QQRRI,QV0KI,RRRI,STBTI,SABCI,TEWCI,TIME1,      19   57
     2TKMI,V0L1,V0TI                                                        19   58
      INTEGER WRK0I,ENBFI,CUR0I,VRINI                                       19   59
      INTEGER CLENG,CNTDR,EMAST,STOPF,ENTFL                                 19   60
      INTEGER CUR0F,ENBFF,VRINT,WRK0F                                       19   61
      INTEGER VRNT1,VRNT2,ENBF                                              19   62
      EQUIVALENCE (WSL2(1),GAWTP),(WSL2(2),GBWTP),                          19   63
     1(WSL2(4),INTR2),(WSL2(5),INTRM),(WSL2(6),INTNM),(WSL2(7),INTNL),      19   64
     2(WSL2(8),TEWCT)                                                       19   65
      EQUIVALENCE (WSL2(30),ENINT,INTDU,IREDF),                             19   66
     1(WSL2(32),IM2),(WSL2(33),IM9),(WSL2(34),IR14),(WSL2(35),IR15),        19   67
     2(WSL2(36),IM10),(WSL2(37),IR8),(WSL2(39),I),(WSL2(40),II),            19   68
     3(WSL2(WI),I2)                                                         19   69
      INTEGER XFF                                                           19   70
      DATA XFF/W1/                                                          19   71
C     ** ARE ALL FIXED TIME CONTROLLERS ON-LINE                             19   72
      IF (M0LDI(2*IL2+1).EQ.SMSKI(2*IL2+1)) GO TO 89D                       19   73
C     ** CHECK IF ANY UNDER COMPUTER CONTROL                                19   74
      IF (M0LDI(2*IL2+1).EQ.XFF) GO TO 890                                  19   75
C     ** SET UP LOOP TO CHECK IF ANY FULLY ACTUATED CONTROLLER NOT UNDER    19   76
C     ** COMPUTER CONTROL                                                   19   77
      JL2=1                                                                 19   78
C     ** FORM .NOT.(M0LD.AND.SEMSK).AND.SEMSK AND CHECK TO SEE IF ANY       19   79
C     ** TO DO                                                              19   80
  830 IF(M0LD(JL2).EQ.0.AND.SEMSK(JL2).EQ.1) GO TO 3060                     19   81
  880 IF (JL2.GE.32)GO TO 890                                               19   82
      JL2=JL2+1                                                             19   83
      GO TO 830                                                             19   84
C     ** START LOOP FOR COUNTDOWN OF CONTROLLER INTERVALS                   19   85
C     ** INITIALIZE FLAGS TO ZERO                                           19   86
  890 JL2=1                                                                 19   87
  892 KL2=IC0N+JL2                                                          19   88
C     ** IF THIS CONTROLLER UNDER COMPUTER CONTROL AND NOT SEMI-ACTUATED    19   89
C     ** GO THROUGH INTERVAL COUNTDOWN, ELSE TRY NEXT CONTROLLER.           19   90
      IF(M9LD(JL2).EQ.0.OR.SEMSK(JL2).EQ.0) GO TO 1495                      19   91
C     ** UPDATE AUTOF=.NOT.(M9LD.AND.SEMSK).AND.AUTOF                       19   92
      AUT0F(JL2)=0                                                          19   93
      CALL UPBYT(INTMI,KL2,INTNM)                                           19   94
      INTNL=INTNM                                                           19   95
      CALL PKBYT(INTLI,KL2,INTNL)                                           19   96
C     ** DECREMENT COUNTDOWN REGISTER AND CHECK IS INTERVAL IS COMPLETED     19   97
      CNTDR(KL2)=CNTDR(KL2)-IDECR                                           19   98
```

```
      IF(CNTOR(KL2).GT.0) GO TO 1435                                    19   99
      IR2=0                                                             19  100
      IR15=0                                                            19  101
C  ** CALL RBUTINE TO UNPACK BYTES,HALFWORD,AND,=WRDS FOR THIS CPT.     19  102
      CALL UNPT                                                         19  103
      IR6=16=KL2=16                                                     19  104
C  ** GET CURRENT INTERVAL NUMBER AND CHECK IF CONTROLLER HAS JUST      19  105
C  ** FINISHED ITS LAST GREEN INTERVAL. IF YES SET FLAG.                19  106
      IF(INTNM.EQ.(INTR2-2)) IR15=1                                     19  107
C  ** TEST IF EQUAL TO MAX INTERVAL NUMBER                            19  108
      IF (INTNM.EQ.INTRH) GO TO 1230                                    19  109
      INTNM=INTNM+1                                                     19  110
      IR4=IR6+INTNM                                                     19  111
C  ** GET INTERVAL DURATION VALUE AND STORE IN COUNT DOWN REGISTER      19  112
      CALL UPBYT(INTDI,IR4,INTDU)                                       19  113
      CNTOR(KL2)=INTDU                                                  19  114
      GO TO 1440                                                        19  115
C  ** SET FLAG TO INDICATE CONTROLLER INTERVAL COUNT HAS REACHED MAX.   19  116
 1230 INTNM=1                                                           19  117
C  ** GET FIRST INTERVAL DURATION VALUE AND STORE IN COUNT DOWN REGISTE 19  118
      IR4=IR6+INTNM                                                     19  119
      CALL UPBYT(INTDI,IR4,INTDU)                                       19  120
      CNTDR(KL2)=INTDU                                                  19  121
      IR2=1                                                             19  122
      GO TO 1640                                                        19  123
 1430 CALL PCKT                                                         19  124
 1435 IF (JL2.GE.32) RETURN                                             19  125
      JL2=JL2+1                                                         19  126
      GO TO 692                                                         19  127
 1440 CONTINUE                                                          19  128
 1610 CONTINUE                                                          19  129
      GO TO 1642                                                        19  130
 1640 INT1S(JL2)=1                                                      19  131
      CPASG(JL2)=1                                                      19  132
C  **                                                                   19  133
 1642 CONTINUE                                                          19  134
      IADVP(JL2)=1                                                      19  135
      IF (ADVNH(JL2).EQ.1) IADVP(JL2)=0                                 19  136
      ADVNH(JL2)=0                                                      19  137
C  ** TEST IF CONTROLLER HAS ENDED LAST GREEN INTERVAL.                 19  138
      IF (IR15.EQ.1) CPASG(JL2)=0                                       19  139
C  ** TEST IF THIS CONTROLLER HAS EXCEEDED MAX INTERVAL COUNT           19  140
      IF (IR2.NE.1) GO TO 1430                                          19  141
C  ** IS TRANSITION FLAG SET                                           19  142
      IF (TRNSF(JL2).EQ.0) GO TO 2160                                   19  143
C  ** IF NOT CLEAR SPLIT CHANGE FLAG,TRANSITION FLAG, AND OFFSET CHANGE 19  144
C  ** FLAG, SET CIC BYPASS FLAG                                        19  145
      SPLCH(JL2) = 0                                                    19  146
      TRNSF(JL2) = 0                                                    19  147
      FSTCF(JL2) = 0                                                    19  148
      CICBP(JL2) = 1                                                    19  149
      CALL UPBYT(ENTCYC,KL2,TMP)                                        19  150
      CALL PKBYT(CYCLI,KL2,TMP)                                         19  151
      CALL RTNS                                                         19  152
      GO TO 1430                                                        19  153
C  ** IS BPS TRANSITION FLAG SET                                       19  154
 2160 CONTINUE                                                          19  155
C  ** CHECK MI, THE NUMBER OF REMAINING CYCLES. IS THIS GREATER THAN 0  19  156
      CALL UPBYT(MII,KL2,MMI)                                           19  157
      IF(MMI.GT.0) GO TO 2750                                           19  158
C  ** YES GREATER THAN ZERO.                                           19  159
C  ** CHECK IF OPERATOR SPLIT CHANGE FLAG SET                          19  160
      IF (SPLCH(JL2).EQ.1) GO TO 2290                                   19  161
 2610 CALL RTNS                                                         19  162
      GO TO 1430                                                        19  163
C  ** CLEAR OPERATOR SPLIT CHANGE                                      19  164
 2290 SPLCH(JL2) = 0                                                    19  165
      JJ=4=KL2=3                                                        19  166
      CALL UPBYT(VRINI,JJ,VRNT1)                                        19  167
      CALL UPBYT(VRINI,JJ+1,VRNT2)                                      19  168
      IR6=IR6+1                                                         19  169
      I1=IR6+VRNT1                                                      19  170
      I2=IR6+VRNT2                                                      19  171
C  ** STORE OPERATION SPLIT INTO WORKING STORAGE                       19  172
      CALL UPBYT(GAWTI,KL2,GAWTP)                                       19  173
      CALL UPBYT(GBWTI,KL2,GBWTP)                                       19  174
      CALL PKBYT(INTDI,I1,GAWTP)                                        19  175
      CALL PKBYT(INTDI,I2,GBWTP)                                        19  176
      GO TO 2610                                                        19  177
C  ** DECREMENT MI                                                     19  178
 2750 MMI=MMI-1                                                         19  179
      CALL PKBYT(MII,KL2,MMI)                                           19  180
C  ** CLEAR OFFSET CHANGE FLAG AND SPLIT CHANGE FLAG.                  19  181
C  ** SET CIC BYPASS FLAG                                              19  182
      FSTCF(JL2)=0                                                      19  183
      SPLCH(JL2)=0                                                      19  184
      CICBP(JL2)=1                                                      19  185
      IF(MMI.GT.0) GO TO 1430                                           19  186
      IDX=4=(JL2-1)                                                     19  187
      DO 2751 IJP=1,4                                                   19  188
      JNDX=IDX+IJP                                                      19  189
      CALL UPBYT(IB,JNDX,TMP)                                           19  190
      CALL PKBYT(WRKBFS,JNDX,TMP)                                       19  191
 2751 CONTINUE                                                          19  192
C  ** TRANSFER NEW DATA TO WORKING STORAGE                             19  193
      IR6=IR6+1                                                         19  194
      CALL UPBYT(ENINI,IR6,ENINT)                                       19  195
      CNTDR(KL2)=ENINT                                                  19  196
      CALL UPBYT(ENBFI,KL2,ENBF)                                        19  197
      CALL PKBYT(WRKBI,KL2,ENBF)                                        19  198
      CALL MOVTS(ENINI,INTDI,IR6,16)                                    19  199
      GO TO 2610                                                        19  200
C  ** CLEAR OFFSET CHANGE FLAG,OPERATOR SPLIT CHANGE FLAG AND          19  201
C  ** TRANSITION FLAG                                                  19  202
 3060 FSTCF(JL2) = 0                                                    19  203
      SPLCH(JL2) = 0                                                    19  204
```

```
      TRNSF(JL2) = 0                                                    19  205
C  ** FORM STARTA.AND.AUTOF,  IF ZERO, NOTHING TO DO                   19  206
      IF (STRTA(JL2).EQ.0.OR.AUTOF(JL2).EQ.0) GO TO 880                 19  207
      HOLD(JL2) = 1                                                     19  208
      CICBP(JL2)=1                                                      19  209
      CPAOG(JL2)=1                                                      19  210
      AUTOF(JL2) = 0                                                    19  211
      INTNM=1                                                           19  212
      KL2=ICON*JL2                                                      19  213
      CALL PKBYT(INTMI,KL2,INTNM)                                       19  214
      CALL PKBYT(INTLI,KL2,INTNM)                                       19  215
      CALL PKBYT(STBTI,KL2,0)                                           19  216
      CALL UPBYT(ENTCYC,KL2,TMP)                                        19  217
      CALL PKBYT(CYCLI,KL2,TMP)                                         19  218
 3062 CONTINUE                                                          19  219
      CALL RTNS                                                         19  220
      GO TO 880                                                         19  221
      END                                                               19  222
```

2.6.73 SUBROUTINE PCKT

```
ROUTINE:  PCKT

      C  *   PCKT                                                                  20    1
           SUBROUTINE PCKT                                                         20    2
           COMMON /BLK17/ ADVNI(8)    , CICBI(8)    , CA9GI(8)    ,               20    3
          * IADPI(8)     , CNTDR(124) , CNTNM       , IL2         ,               20    4
          * INTMI(31)    , INTLI(31)  , INT8I(32)   , KL1         ,               20    5
          * STBTI(32), TIMEI(32), QV8KI(69)                                       20    6
           INTEGER AM8PI,C8NTI,CNTLI,CYCLI,ENINI,GAABI,GA*TI,GB*TI,GUARI,         20    7
          1GLABI,GMABI,ICICI,QQQI,QJRRI,QV8KI,RRRI,STBTI,SABCI,TEWCI,TIMEI,       20    8
          2T<MI,V8LI,V8TI                                                         20    9
           COMMON /BYTL2/IC8N,JL2,KL2,IDECR,WSLP(50)                              20   10
           EQUIVALENCE (WSL2(1),GAWTP),(WSL2(2),GBWTP),                           20   11
          1(WSL2(4),INTR2),(WSL2(5),INTRH),(WSLP(6),INTNM),(WSL2(7),INTNL),       20   12
          2(WSL2(8),TEWCT)                                                        20   13
           CALL PKBYT(INTMI,KL2,INTNM)                                            20   14
           CALL PKBYT(INTLI,KL2,INTNL)                                            20   15
           RETURN                                                                 20   16
           END                                                                    20   17
```

2.6.74 SUBROUTINE UNPT

```
ROUTINE:  UNPT

C  *   UNPT                                                                  21    1
       SUBROUTINE UNPT                                                       21    2
       COMMON /BLK7 /A8GI(16)    , INTHI(31)  , INT2I(31)  ,                 21    3
      * KCTC(17),K3PHI(31),STUPF,NQL(31)                                     21    4
       COMMON /BLK17/ ADVNI(8)   , CIC8I(8)   , CA8GI(8)   ,                 21    5
      * IADPI(8)     , CNTDR(124) , CNTNM      , IL2        ,                 21    6
      * INTMI(31)    , INTLI(31)  , INT8I(32)  , KL1        ,                 21    7
      * ST8TI(32), TIMEI(32), QV8KI(69)                                      21    8
       COMMON /BLK18/ CICTI(8)   , CT8DI(8)   , ST8DI(8)   ,                 21    9
      * C8NTI(62)    , CUR8I(31)  , CYCLI(31)  , ENINI(496) ,                21   10
      * EN8FI(31)    , GAABI(124) , GA*TI(31)  , GB*TI(31)  ,                21   11
      * GLABI(124)   , GMABI(124) , GUABI(124) , INTDI(496) ,                21   12
      * SABCI(124)   , TKMI(31)   , *RK8I(31)                                21   13
       INTEGER AM8PI,C8NTI,CNTLI,CYCLI,ENINI,GAABI,GA*TI,GB*TI,GUABI,        21   14
      1GLABI,GMABI,QCICI,GQQI,QQRMI,QV8KI,RRRI,ST8TI,SABCI,TE*CI,TIMEI,      21   15
      2TKMI,V8LI,V8TI                                                       21   16
       INTEGER *RK8I,EN8FI,CUR8I,VRINI                                      21   17
       COMMON /BYTL2/ IC8N,JL2,KL2,IDECR,*SL2(50)                           21   18
       EQUIVALENCE (*SL2(1),GA*TP),(*SL2(2),GB*TP),          .              21   19
      1(*SL2(4),INTR2),(*SL2(5),INTRM),(*SL2(6),INTNM),(*SL2(7),INTNL),     21   20
      2(*SL2(8),TE*CT)                                                      21   21
       INTEGER GA*TP,GB*TP,TE*CT                                            21   22
       CALL UP8YT(INT2I,KL2,INTR2)                                          21   23
       CALL UP8YT(INTMI,KL2,INTRM)                                          21   24
       RETURN                                                               21   25
       END                                                                  21   26
```

2.6.75 ROUTINE U

```
$ROUTINE  RTNU

C   *   RTNU                                                                23    1
      SUBROUTINE RTNU                                                       23    2
      COMMON /BLK7 /A0GI(16)    , INTMI(31)  , INT2I(31)  ,                 23    3
     * KCTC(17),K3PHI(31),STUPF,NGL(31)                                     23    4
      COMMON /BLK14/ CLENG      , DTLNG      , CMLNG      ,                 23    5
     * DUMY1       , DUMY2,                                                23    6
     * CNTLI(372), ENTFL(5), KCL(17), KCTF(17),                            23    7
     * KCSF(17), NMVAI(31), SMSKI(8),                                      23    8
     * VRINI(123)  , LNKPT(64)                                             23    9
      COMMON /BLK17/ ADVNI(8)   , CICBI(8)   , CA0GI(8)   ,                23   10
     * IADPI(8)    , CNTDR(124) , CNTNM      , IL2        ,                23   11
     * INTMI(31)   , INTLI(31)  , INT0I(32)  , KL1        ,                23   12
     * STBYI(32), TIMEI(32), QV0KI(69)                                     23   13
      COMMON /BLK18/ CICTI(8)   , CT0DI(8)   , ST0DI(8)   ,                23   14
     * CONTI(62)   , CUR0I(31)  , CYCLI(31)  , ENINI(496) ,                23   15
     * EN0FI(31)   , GAABI(124) , GAWTI(31)  , GBWTI(31)  ,                23   16
     * GLABI(124)  , GMA0I(124) , GUA0I(124) , INTDI(496) ,                23   17
     * SABCI(124)  , TKMI(31)   ,WRK0I(31)                                 23   18
C  ** THE PURPOSE OF THIS ROUTIN IS TO COMPUTE THE DIFFERENCE BETWEEN      23   19
C  ** THE PRESENT CONTROLLER OFFSET AND THE DESIRED CONTROLLER OFFSET       23   20
C  ** AND CORRECT FOR THIS DIFFERENCE                                      23   21
      COMMON/BITL2/BITAR(640)                                               23   22
      DIMENSION ADVNM(32),A0G(32),AP0(32),AUT0F(32),CICBP(32),              23   23
     1CICEF(32),CICTF(32),CT0DF(32),CMALF(32),CPA0G(32),FSTCF(32),          23   24
     2H0LD(32),IADVP(32),INT1S(32),SEMSK(32),SPLCH(32),STBYD(32),           23   25
     3STRTA(32),TRNSF(32),CICSF(32)                                         23   26
      EQUIVALENCE                                                           23   27
     1(ADVNM,BITAR( 1)),(A0G  ,BITAR( 33)),(AP0  ,BITAR( 65)),              23   28
     2(AUT0F,BITAR( 97)),                                                   23   29
     1(CICBP,BITAR(129)),(CICEF,BITAR(161)),(CICSF,BITAR(193)),             23   30
     1(CICTF,BITAR(225)),(CT0DF,BITAR(257)),(CMALF,BITAR(289)),             23   31
     3(CPA0G,BITAR(321)),(FSTCF,BITAR(353)),(H0LD ,BITAR(385)),             23   32
     4(IADVP,BITAR(417)),(INT1S,BITAR(449)),(SEMSK,BITAR(481)),             23   33
     5(SPLCH,BITAR(513)),(STRTA,BITAR(545)),(STBYD,BITAR(577)),             23   34
     6(TRNSF,BITAR(609))                                                    23   35
      COMMON /BYTL2/ICON,JL2,KL2,IDECR,WSL2(50)                             23   36
      INTEGER ADVNM,A0G,AP0,AUT0F,0PSIF,BTRNF,CICBP,CICEF,CICSF,            23   37
     1CICTF,CT0DF,CMALF,CPA0G,FSTCF,GAI,H0LD,SEMSK,SPLCH,STBYD,             23   38
     2STRTA,TRNSF                                                           23   39
      INTEGER AM0PN,CONTB,CNTLN,CYCLC,ENINT,GAABC,GAWTP,GBWTP,              23   40
     1GLABC,GMA0C,LDSET,QCICT,QQQ,QQRR,QV0K,RRR,STBTM,SABCT,TEWCT,TIME0,    23   41
     2TKM,V0L,V0T                                                           23   42
      INTEGER AM0PI,CONTI,CNTLI,CYCLI,ENINI,GAABI,GAWTI,GBWTI,GUA0I,        23   43
     1GLABI,GMA0I,QCICI,QQQI,QQRRI,QV0KI,RRRI,STBTI,SABCI,TEWCI,TIMEI,      23   44
     2TKMI,V0LI,V0TI                                                        23   45
      INTEGER WRK0I,EN0FI,CUR0I                                             23   46
      INTEGER WRK0I,EN0FI,CUR0I,VRINI                                       23   47
      INTEGER CLENG,CNTDR,EMAST,STUPF,ENTFL                                 23   48
      INTEGER CUR0F,EN0FF,VRINT,WRK0F                                       23   49
      INTEGER CURF,WRKF                                                     23   50
      EQUIVALENCE (WSL2(25),CYCLC),(WSL2(26),NAM0P),(WSL2(27),M0EPS)        23   51
      EQUIVALENCE (WSL2(30),AM0PN,M0E1P,M0E2P),(WSL2(32),IR6),              23   52
     1(WSL2(33),EPS0F),(WSL2(34),IR2),(WSL2(35),IR12),(WSL2(36),IR1D),      23   53
     2(WSL2(37),IR5)                                                        23   54
      INTEGER XFF,EPS0F                                                     23   55
      IR6=6*WL2=5                                                           23   56
      CALL  UPBYT(CYCLI,KL2,CYCLC)                                          23   57
      CYCLC=CYCLC+1                                                         23   58
C  ** SET THE CURRENT OFFSET IN CUR0F AND COMPUTE THE DIFFERENCE, EPS0F     23   59
C  *** BETWEEN TH PRESENT CONTROLLER OFFSET, KCTC(CYCLC), AND THE DESIRED   23   60
C  ** OFFSET WRK0F                                                         23   61
      CURF=KCTC(CYCLC)                                                      23   62
      CALL PKBYT(CUR0I,KL2,CURF)                                            23   63
      CALL UPBYT(WRK0I,KL2,WRKF)                                            23   64
      EPS0F=WRKF-CURF                                                       23   65
C  ** IF THE CURRENT OFFSET EQUALS DESIRED OFFSET, RETURN TO ROUTINE T      23   66
      IF (EPS0F.EQ.0) RETURN                                                23   67
C  ** TEST FOR NEGATIVE DIFFERENCE                                         23   68
      IF (EPS0F.LT.0) GO TO 880                                             23   69
C  ** TEST FOR LESS THAN 6 SECONDS                                         23   70
      IF (EPS0F.LT.12)GO TO 400                                             23   71
      IR14=KCL(CYCLC)-6                                                     23   72
C  ** TEST EPS0F LT. (KCL(CYCLC)-3 SECONDS)                                23   73
      IF (EPS0F.LT.IR14) GO TO 500                                          23   74
C  ** NO, SUBTRACT OFF CYCLE LENGTH                                        23   75
      EPS0F=EPS0F-KCL(CYCLC)                                                23   76
  400 CONTINUE                                                              23   77
C  ** ADD EPS0F TO COUNT DOWN REGISTER                                      23   78
  402 CNTDR(KL2)=CNTDR(KL2)+EPS0F                                           23   79
      IF (CURF .GT. KCL(CYCLC))  CURF = CURF - KCL(CYCLC)                   23   80
      CURF=CURF+EPS0F                                                       23   81
      CALL PKBYT(CUR0I,KL2,CURF)                                            23   82
      RETURN                                                                23   83
C  ** TEST IF EPS0F IS GREATER THAN 2/3 KCL(CYCLC)                          23   84
  500 IR14=.66667*KCL(CYCLC)                                                23   85
      IF (EPS0F.GT.IR14) GO TO 580                                          23   86
C  ** NO, SET EPS0F EQUAL TO 6 SECONDS                                     23   87
      EPS0F=12                                                              23   88
      GO TO 400                                                             23   89
C  ** YES, SET EPS0F EQUAL TO -3 SECONDS                                    23   90
  580 EPS0F=-6                                                              23   91
      GO TO 400                                                             23   92
  880 IF (EPS0F.GE.(-6)) GO TO 400                                          23   93
      EPS0F=KCL(CYCLC)+EPS0F                                                23   94
      IF (EPS0F.LE.12)GO TO 400                                             23   95
      GO TO 500                                                             23   96
      END                                                                   23   97
```

2.6.76 ROUTINE V

```
ROUTINE: RTNV

C   *   RTNV                                                          24    1
      SUBROUTINE RTNV                                                 24    2
C  ** TO APPORTION THE SPLIT OF THE CRITICAL PHASES OF AN             24    3
C  ** OPERATIONAL CRITICAL INTERSECTION ACCORDING TO THE              24    4
C  ** MEASURED VEHICULAR DEMAND ON THESE PHASES.                      24    5
      COMMON /BLK7 /ABGI(16)    , INTHI(31)  , INT2I(31)  ,           24    6
     * KCYC(17), K3PHI(31), STOPF, NQLI(31)                           24    7
      COMMON /BLK13/ DWL(259)    ,DWLP(17)    , EBOC       ,         24    8
     * F(AB, FTBAB, MBEII(69)                                        24    9
      COMMON /BLK14/ CLENG       , OTLNG       , CMLNG      ,        24   10
     * DUMY1         , DUMY2,                                        24   11
     * CNTLI(372), ENTFL(5), KCL(17), KCTF(17),                      24   12
     * KCSF(17), NMVAI(31), SMSKI(8),                                24   13
     * VRINI(123)  , LNKPT(64)                                       24   14
      COMMON /BLK17/ ADVNI(8)   , CICBI(8)   , CABGI(8)   ,         24   15
     * IADPI(8)    , CNTDR(124) , CNTNM      , IL2        ,         24   16
     * INTMI(31)   , INTLI(31)  , INTBI(32)  , KL1        ,         24   17
     * STBTI(32), TIMEI(32), QVBKI(69)                               24   18
      COMMON /BLK18/ CICTI(8)   , CTBDI(8)   , STBDI(8)   ,         24   19
     * CBNTI(62)   , CURBI(31)  , CYCLI(31) , ENINI(496) ,         24   20
     * ENBFI(31)   , GAABI(124) , GAATI(31)  , GBATI(31)  ,         24   21
     * GLABI(124)  , GMABI(124) , GUABI(124) , INTDI(496) ,         24   22
     * SABCI(124)  , TKMI(31)   ,ARRBI(31)                          24   23
      COMMON /MISCL/ CICINH(8),LSU(3),CYCREF(5)                     24   24
      INTEGER CICINH,CYCREF                                         24   25
      COMMON/BITL2/BITAR(640)                                       24   26
      DIMENSION ADVNM(32),ABG(32),APB(32),AUTBF(32),CICBP(32),      24   27
     1CICEF(32),CICTF(32),CTBDF(32),CMALF(32),CPABG(32),FSTCF(32),  24   28
     2HBLD(32),IADVP(32),INT1S(32),SEMSK(32),SPLCH(32),STBYD(32),   24   29
     3STRTA(32),TRNSF(32),CICSF(32)                                 24   30
      EQUIVALENCE                                                   24   31
     1(ADVNM,BITAR(  1)),(ABG  ,BITAR( 33)),(APB  ,BITAR( 65)),     24   32
     2(AUTBF,BITAR( 97)),                                           24   33
     1(CICBP,BITAR(129)),(CICEF,BITAR(161)),(CICSF,BITAR(193)),     24   34
     1(CICTF,BITAR(225)),(CTBDF,BITAR(257)),(CMALF,BITAR(289)),     24   35
     3(CPABG,BITAR(321)),(FSTCF,BITAR(353)),(HBLD ,BITAR(385)),     24   36
     4(IADVP,BITAR(417)),(INT1S,BITAR(449)),(SEMSK,BITAR(481)),     24   37
     5(SPLCH,BITAR(513)),(STRTA,BITAR(545)),(STBYD,BITAR(577)),     24   38
     6(TRNSF,BITAR(609))                                            24   39
      COMMON /BYTL2/ICBN,IL2,KL2,IDECR,WSL2(50)                     24   40
      EQUIVALENCE (NQL,WSL2(1)),(LSI,WSL2(2)),(QVBK,WSL2(3)),       24   41
     1 (VRINT,WSL2(4)),(LINK,WSL2(8)),(SABCT,WSL2(16)),             24   42
     2(GAABC,WSL2(20)),(GLABC,WSL2(24)),(GMABC,WSL2(28)),           24   43
     3(CNTLN,WSL2(32)),(ENINT,WSL2(33)),(INTDU,WSL2(34)),           24   44
     4(K3PH,WSL2(35)),                                              24   45
     5(VBT,WSL2(36)),(GUABC,WSL2(39)),                              24   46
     6                (IR4,WSL2(36)),(IR6,WSL2(37)),(II4,WSL2(45)), 24   47
     7(IR5,WSL2(46)),(IR9,WSL2(47)),(IR10,WSL2(48)),(INDX3,WSL2(49)),24   48
     8(IR11,WSL2(50))                                               24   49
      DIMENSION GAABC(4),GLABC(4),GMABC(4),SABCT(4),GUABC(4),VRINT(4),24   50
     1 LINK(5)                                                      24   51
      INTEGER ADVNM,ABG,APB,AUTBF,BPSIF,BTRNF,CICBP,CICEF,CICSF,     24   52
     1CICTF,CTBDF,CMALF,CPABG,FSTCF,GAI,HBLD,SEMSK,SPLCH,STBYD,     24   53
     2STRTA,TRNSF                                                   24   54
      INTEGER AMBPN,CBNTB,CNTLN,CYCLC,ENINT,GAABC,GAATP,GBATP,GUAPC,24   55
     1GLABC,GMABC,LOSET,QCICT,QQQ,QQWR,QVBK,RRR,STBTM,SABCT,TEACT,TIMEB,24   56
     2TKM,VBL,VBT                                                   24   57
      INTEGER AMBPI,CBNTI,CNTLI,CYCLI,ENINI,GAABI,GAATI,GBATI,GUABI,24   58
     1GLABI,GMABI,QCICI,QQQI,QQWRI,QVBKI,RRRI,STBTI,SABCI,TEACI,TIMEI,24   59
     2TKMI,VBLI,VBTI                                                24   60
      INTEGER CLENG,CNTDN,EMAST,STOPF,ENTFL                         24   61
      INTEGER CURBF,ENBFF,VRINT,ARRBF                               24   62
      INTEGER GDA,GOC,GA,GB,GC,GAB,GDB                              24   63
      DATA GDA/0/,GOM/0/,GOC/0/,GA/0/,GB/0/,GC/0/,GAB/0/            24   64
C  ** IF (INTERVAL BNE START FLAG) AND (SEMIACTUATED CONTROLLERS)    24   65
C  ** ARE EQUAL TO ZERO                                            24   66
      DO 5000 II=1,32                                               24   67
      IF (INT1S(II).EQ.1.AND.SEMSK(II).EQ.1) GO TO 550              24   68
      GO TO 5000                                                    24   69
  550 INT1S(II) = 0                                                 24   70
C  ** IS CIC BYPASS FLAG SET                                        24   71
      IF(CICBP(II).EQ.1) GO TO 650                                  24   72
C  ** IS OFFSET CHANGE FLAG SET                                     24   73
      IF (FSTCF(II).EQ.0) GO TO 690                                 24   74
C  ** YES RESET SET                                                 24   75
  650 CICBP(II) = 0                                                 24   76
      CICTF(II)=0                                                   24   77
      CICEF(II)=0                                                   24   78
      GO TO 5000                                                    24   79
  690 KL2 = (II+ICBN)                                               24   80
      CALL UPBYT (NQLI,KL2,NQL)                                     24   81
      IF (NQL.EQ.0) GO TO 5000                                      24   82
C   TEST FOR CIC INHIBITED BY OPTIMIZATION ROUTINES                 24   83
      CALL GETBI(CICINH,KL2,IJ,1)                                   24   84
      IF(IJ.NE.0) GO TO 5000                                        24   85
C  ** UNPACK SPECIAL BYTE ARRAYS NEEDED IN THIS SUBROUTINE          24   86
      CALL UPKV                                                     24   87
C  ** NO IT IS NOT                                                  24   88
      IR4=1                                                         24   89
      IR6=16*(KL2-1)                                                24   90
      INDXA=LSI                                                     24   91
      LIM=NQL+LSI                                                   24   92
  740 CALL UPBW (CNTLI,INDXA,INDXB)                                 24   93
      IF(INDXB.LT.0) GO TO 750                                      24   94
      INDXB=INDXB+1                                                 24   95
      CALL UPBYT (MBEII,INDXB,MBEIF)                                24   96
      IF(MBEIF.NE.0) GO TO 2610                                     24   97
  750 CONTINUE                                                      24   98
      INDXA=INDXA+1                                                 24   99
```

```
      IF(INDXA.NE.LIM) GO TO 740                                        24  100
      IF(CICSF(II).NE.1) GO TO 2010                                     24  101
      IF(CTODF(II).NE.1) GO TO 2010                                     24  102
      CICEF(II) = 1                                                     24  103
      IR5= VRINT(1)  +IR6                                               24  104
      CALL UPBYT(ENINI,IR5,ENINT)                                       24  105
      CALL PKBYT(INTOI,IR5,ENINT)                                       24  106
      IR5=VRINT(2)+IR6                                                  24  107
      CALL UPBYT (ENINI,IR5,ENINT)                                      24  108
      CALL PKBYT (INTDI,IR5,ENINT)                                      24  109
C  ** CALL GREEN DEMAND SUBROUTINE FOR GDA                              24  110
 1000 GDA=0                                                             24  111
      IF(LINK(1).GT.0) CALL GOSUB(LINK(1),GDA)                          24  112
      IR11=0                                                            24  113
      IF(LINK(2).GT.0) CALL GOSUB(LINK(2),IR11)                         24  114
      IF (IR11.GT.GDA) GDA=IR11                                         24  115
 1240 GDB=0                                                             24  116
      IF(LINK(3).NE.0) CALL GOSUB(LINK(3),GDB)                          24  117
      IR11=0                                                            24  118
      IF(LINK(4).NE.0) CALL GOSUB(LINK(4),IR11)                         24  119
      IF(GDB.GT.IR11) GDB=IR11                                          24  120
 1490 IF (K3PH . GT . 0) GO TO 2380                                     24  121
      IF(CICTF(II).NE.1) GO TO 1900                                     24  122
      IF(GDA.GT.GLABC(IR4)) GO TO 1690                                  24  123
      IR7=IR4+1                                                         24  124
      IF(GDB.GT.GLABC(IR7)) GO TO 1690                                  24  125
 1650 CONTINUE                                                          24  126
      GO TO 2190                                                        24  127
 1650 CICTF(II) = 1                                                     24  128
 1690 IR9=GAABC(IR4)                                                    24  129
      IR12=GMABC(IR4)                                                   24  130
      IR7=IR4+1                                                         24  131
      IR13=GMABC(IR7)                                                   24  132
 1740 IR10=GDB                                                          24  133
      IR11=GDA                                                          24  134
C  ** GO TO 2 PHASE SUBROUTINE                                         24  135
      CALL PSUB2(IR9,IR10,IR11,IR12,IR13)                               24  136
 1770 IR9=SABCT(IR4)                                                    24  137
      IR12=IR12-IR9                                                     24  138
      IR7=VRINT(1)  +IR6                                                24  139
      CALL PKBYT(INTDI,IR7,IR12)                                        24  140
      IR7=IR4+1                                                         24  141
      IR9=SABCT(IR7)                                                    24  142
      IR13=IR13-IR9                                                     24  143
      IR7=VRINT(2)  +IR6                                                24  144
      CALL PKBYT(INTDI,IR7,IR13)                                        24  145
      GO TO 2300                                                        24  146
 1900 IF(GDA.GT.GUABC(IR4)) GO TO 1650                                  24  147
      IR7=IR4+1                                                         24  148
      IF(GDB.GT.GUABC(IR7)) GO TO 1650                                  24  149
      GO TO 5000                                                        24  150
 2010 CICEF(II) = 0                                                     24  151
      IF(CICTF(II).NE.1) GO TO 5000                                     24  152
 2080 IF(K3PH . NE . 1) GO TO 2190                                      24  153
 2130 IR5=VRINT(3)  +IR6                                                24  154
      CALL UPBYT (ENINI,IR5,ENINT)                                      24  155
      CALL PKBYT (INTOI,IR5,ENINT)                                      24  156
 2190 IR5= VRINT(1)  +IR6                                               24  157
      CALL UPBYT (ENINI,IR5,ENINT)                                      24  158
      CALL PKBYT (INTOI,IR5,ENINT)                                      24  159
      IR5=VRINT(2)  +IR6                                                24  160
      CALL UPBYT (ENINI,IR5,ENINT)                                      24  161
      CALL PKBYT (INTDI,IR5,ENINT)                                      24  162
      CICTF(II) = 0                                                     24  163
 2300 CALL UPBYT(INTDI,IR6+1,INTDU)                                     24  164
      CNTOR (KL2) = INTOU                                               24  165
      CNTNM=KL2                                                         24  166
      GO TO 5000                                                        24  167
 2380 GDC=0                                                             24  168
      IF(LINK(5).NE.0) CALL GOSUB(LINK(5),GDC)                          24  169
      IF(CICTF(II).NE.1) GO TO 2560                                     24  170
 2520 IF(GLABC(IR4).LT.GDA) GO TO 2820                                  24  171
      IR7=IR4+1                                                         24  172
      IF(GLABC(IR7).LT.GDB) GO TO 2820                                  24  173
      IR7=IR7+1                                                         24  174
      IF(GLABC(IR7).LT.GDC) GO TO 2820                                  24  175
 2640 CONTINUE                                                          24  176
      GO TO 2000                                                        24  177
 2560 IF (GUABC(IR4).LT.GDA) GO TO 2780                                 24  178
      IR7=IR4+1                                                         24  179
      IF (GUABC(IR7).LT.GDB) GO TO 2780                                 24  180
      IR7=IR7+1                                                         24  181
      IF (GUABC(IR7).GE.GDC) GO TO 5000                                 24  182
 2780 CONTINUE                                                          24  183
      CICTF(II) = 1                                                     24  184
 2820 IF (K3PH . EQ . 1) GO TO 3130                                     24  185
      IF (K3PH . NE . 2) GO TO 3560                                     24  186
      IR11= GDA                                                         24  187
      IR10= GDB                                                         24  188
      GAB=GAABC(IR4)                                                    24  189
      IR9 = GAB                                                         24  190
      IR12=GMABC(IR4)                                                   24  191
      IR7=IR4+1                                                         24  192
      IR13=GMABC(IR7)                                                   24  193
C  ** GO TO 2 PHASE SUBROUTINE                                         24  194
      CALL PSUB2(IR9,IR10,IR11,IR12,IR13)                               24  195
      GA=IR12                                                           24  196
      GB=IR13                                                           24  197
      IR11=GDC                                                          24  198
      IR10=GDB                                                          24  199
      IR9=GAABC(IR7)                                                    24  200
      IR13=GMABC(IR7)                                                   24  201
      IR7=IR7+1                                                         24  202
      IR12=SABCT(IR7)                                                   24  203
C  ** GO TO 2 PHASE SUBROUTINE                                         24  204
```

```
      CALL PSUB2(IR9,IR10,IR11,IR12,IR13)                              24  205
      IF(IR13.GT.GB) IR13 = GB                                         24  206
 3100 IR12=GAB=IR13                                                    24  207
      GO TO 1770                                                       24  208
 3130 IR7=IR4+2                                                        24  209
      IR9=GAABC(IR7)                                                   24  210
      IR10=GMABC(IR4)                                                  24  211
      IR12=GMABC(IR7)                                                  24  212
      IR7=IR7-1                                                        24  213
      IR11=GMABC(IR7)                                                  24  214
      IR13=GDA+GDB+GDC                                                 24  215
      IR15=(GDC*IR9)/IR13                                              24  216
      IR15=IR15/2                                                      24  217
      IR15=IR15+2                                                      24  218
      IF(IR15.LE.IR12) GO TO 3440                                      24  219
      IR13=IR9-IR10-IR11                                               24  220
      IF(IR15.LT.IR13) GO TO 3450                                      24  221
      IR7=IR4+2                                                        24  222
      IR14=SABCT(IR7)                                                  24  223
      IR7=VRINT(3)  +IR6                                               24  224
      IR13=IR13-IR14                                                   24  225
      CALL PKBYT(INTDI,IR7,IR13)                                       24  226
      IR12=IR10                                                        24  227
      IR13=IR11                                                        24  228
      GO TO 1770                                                       24  229
 3440 IR15=IR12                                                        24  230
 3450 IR7=IR4+2                                                        24  231
      IR9=IR9-IR15                                                     24  232
      IR14=SABCT(IR7)                                                  24  233
      IR15=IR15-IR14                                                   24  234
      IR7=VRINT(3)  +IR6                                               24  235
      CALL PKBYT (INTDI,IR7,IR15)                                      24  236
      IR12=IR10                                                        24  237
      IR13=IR11                                                        24  238
      GO TO 1740                                                       24  239
 3560 IR11=GDB                                                         24  240
      IR10=GDA                                                         24  241
      IR9=GAABC(IR4)                                                   24  242
      IR7=IR4+1                                                        24  243
      IR12=GMABC(IR7)                                                  24  244
      IR13=GMABC(IR4)                                                  24  245
C  ** GO TO 2 PHASE SUBROUTINE                                         24  246
      CALL PSUB2(IR9,IR10,IR11,IR12,IR13)                              24  247
      GB=IR12                                                          24  248
      GA=IR13                                                          24  249
      GDC=IR11                                                         24  250
      GDA=IR10                                                         24  251
      IR13=GMABC(IR4)                                                  24  252
      IR7=IR4+1                                                        24  253
      IR9=GAABC(IR7)                                                   24  254
      IR7=IR7+1                                                        24  255
      IR12=SABCT(IR7)                                                  24  256
C  ** GO TO 2 PHASE SUBROUTINE                                         24  257
      CALL PSUB2 (IR9,IR10,IR11,IR12,IR13)                             24  258
      GA=IR12                                                          24  259
      IF(IR13.GE.GA) GO TO 3790                                        24  260
 3780 IR12=IR13                                                        24  261
 3790 IR13=GAABC(IR4)                                                  24  262
      IR13=IR13-IR12                                                   24  263
      GO TO 1770                                                       24  264
 5000 CONTINUE                                                         24  265
      RETURN                                                           24  266
      END                                                              24  267
```

2.6.77 SUBROUTINE GDSUB

```
ROUTINE:  GDSUB

C   *   GDSUB                                                          28    1
      SUBROUTINE GDSUB(CNTLN,GA)                                       28    2
      COMMON /BLK14/ CLENG      , DTLNG      , CMLNG      ,            28    3
     * DUMY1       , DUMY2,                                           28    4
     * CNTLI(372), ENTFL(5), KCL(17), KCTF(17),                       28    5
     * KCSF(17), NMVAI(31), SMSKI(6),                                 28    6
     * VBINI(123)  , LNKPT(64)                                        28    7
      COMMON /BLK25/ AMCCI(138),CMMAL(17),CMTAB(258),                  28    8
     * DTTAB(258)  , DIS(17)     , DMALF(17)  , DMODE      ,          28    9
     * FLTAB(500)  , HRF         , MODES      , NAI        ,          28   10
     * VBFAL, SBAM(69), SECFC(4), SCDFC(4), V9LI(138)                  28   11
      COMMON /BYTL2/IC8N,JL2,KL2,IDECR,WSL2(50)                        28   12
      EQUIVALENCE (WSL2(13),CYCLC)                                     28   13
      INTEGER CYCLC,WSL2                                               28   14
      INTEGER V8LI,V9L,AMCCI,AMCC,CNTLI,CNTLN,GA                       28   15
      INTEGER WSL2                                                     28   16
      INTEGER C1,C2,C3                                                 28   17
C****** 122=.239 B9                                                    28   18
      DATA C1/122/                                                     28   19
C**** 21= 1.3190 B4                                                   28   20
      DATA C2/21/                                                      28   21
C**** 255=1.00662 B8                                                  28   22
      DATA C3/256/                                                     28   23
C**** IIHR= RELEASE RATE @ B2                                         28   24
      DATA IHR/10/                                                     28   25
      CALL UPHW (AMCCI,CNTLN,AMCC)                                     28   26
      CALL UPHW (V9LI,CNTLN,V8L)                                       28   27
      AMCC=AMCC/128                                                    28   28
C**** COMPUTE A1 @ B4                                                 28   29
      IA=AMCC*C1/32                                                    28   30
      IA=IA/256                                                        28   31
      ICC2=V8L*KCL(CYCLC)/7200                                         28   32
C**** COMPUTE B1 @34                                                  28   33
      IB=ICC2*C2/2                                                     28   34
C*** COMPUTE CROSS TERM                                               28   35
      ICRBS=ICC2*AMCC                                                  28   36
C **** COMPUTE C @ B4                                                 28   37
      IC=ICRBS*C3/16                                                   28   38
      IC=IC/512                                                        28   39
C*** COMPUTE DEMAND NVEHICLES) @ H4                                   28   40
      GA=IA+IB+IC                                                      28   41
C**** COMPUTE DEMAND (SECONDS) 361                                    28   42
      GA=GA*IHR/32                                                     28   43
      RETURN                                                           28   44
      END                                                              28   45
```

2.6.78 SUBROUTINE PSUB2

```
ROUTINE:  PSUB2

      C   *   PSUB2                                                    25    1
          SUBROUTINE PSUB2 (IR9,IR10,IR11,IR12,IR13)                   25    2
          IR10=IR10/2                                                  25    3
          IR10=2*IR10                                                  25    4
          IR11=IR11/2                                                  25    5
          IR11=IR11*2                                                  25    6
          IR10=IR10+IR11                                               25    7
          IR11=(IR11*IR9)/IR10                                         25    8
          IR11=IR11/2                                                  25    9
          IR11=IR11*2                                                  25   10
          IF(IR11.GT.IR12) GO TO 100                                   25   11
          IR13=IR9*IR12                                                25   12
          GO TO 900                                                    25   13
      100 IR10=IR9*IR11                                                25   14
          IR12=IR11                                                    25   15
          IF(IR10.GE.IR13) GO TO 200                                   25   16
          IR12=IR9*IR13                                                25   17
          GO TO 900                                                    25   18
      200 IR13=IR10                                                    25   19
      900 RETURN                                                       25   20
          END                                                          25   21
```

2.6.79 SUBROUTINE UPKV

```
ROUTINE:  UPKV

      C   *   UPKV                                                                  26    1
          SUBROUTINE UPKV                                                          26    2
          COMMON /BLK7 /A8GI(16)    , INTMI(31)  , INT2I(31)  ,                    26    3
         * KCTC(17), K3PMI(31), STUPF, NQLI(31)                                   26    4
          COMMON /BLK14/ CLENG      , QTLNG      , CMLNG      ,                    26    5
         * DUMY1       , DUMY2,                                                  26    6
         * CNTLI(372), ENTFL(5), KCL(17), KCTF(17),                               26    7
         * KCSF(17), NMVAI(31), SMSKI(8),                                         26    8
         * VRINI(123)  , LNKPT(64)                                                26    9
          COMMON /BLK18/ CICTI(8)   , CT8DI(8)   , ST8DI(8)   ,                    26   10
         * C8NTI(62)   , CUR8I(31)  , CYCLI(31)  , ENINI(496) ,                   26   11
         * EN8FI(31)   , GAABI(124) , GAWTI(31)  , GB*TI(31)  ,                   26   12
         * GLABI(124)  , GMABI(124) , GUABI(124) , INTQI(496) ,                   26   13
         * SABCI(124)  , TKMI(31)   ,*RK8I(31)  ,                                26   14
          COMMON /BYTL2/IC8N,JL2,KL2,IDECR,*SL2(50)                              26   15
          INTEGER GAABC,GLABC,GMABC,CYCLC       ,SABCT,GUABC,QV8K                26   16
          INTEGER AM8MI,C8NTI,CNTLI,CYCLI,ENINI,GAABI,GA*TI,GB*TI,GUABI,         26   17
         1GLABI,GMABI,QCICI,QQQI,QQRMI,QV8KI,*RRI,ST8TI,SABCI,TE*CI,TIMEI,       26   18
         2TKMI,V8LI,V8TI,VRINI                                                   26   19
          EQUIVALENCE (NQL,*SL2(1)),(LSI,*SL2(2)),(QV8K,*SL2(3)),                26   20
         1 (VRINT,*SL2(4)),(LINK,*SL2(5)),(CYCLC,*SL2(13)),(SABCT,*SL2(16)),     26   21
         2(GAABC,*SL2(20)),(GLABC,*SL2(24)),(GMABC,*SL2(28)),                    26   22
         3(CNTLN,*SL2(32)),(ENINT,*SL2(33)),(INTQU,*SL2(34)),                    26   23
         4(K3PM,*SL2(35)),(QCICT,*SL2(36)),                                      26   24
         5(V8T,*SL2(38)),(GUABC,*SL2(39)),(J,*SL2(*3)),(K,*SL2(44))              26   25
          DIMENSION GAABC(4),GLABC(4),GMABC(4),SABCT(4),GUABC(4),VRINT(4),       26   26
         1 LINK(5)                                                               26   27
          DO 1 I=1,5                                                             26   28
          LINK(I)=0                                                              26   29
        1 CONTINUE                                                               26   30
          CALL UPBYT (K3PMI,KL2,K3PM)                                            26   31
          LSI=6*KL2                                                              26   32
          I=LSI                                                                  26   33
          LS9=LSI+6                                                              26   34
        6 I=I+1                                                                  26   35
          IF(I.GT.LS9) GO TO 7                                                   26   36
          CALL UPM*(CNTLI,I,LL)                                                  26   37
          IF(LL.LT.0) GO TO 6                                                    26   38
          CALL UPBYT(LNKPT,LL+1,IP)                                              26   39
          IF(IP.GT.4) GO TO 6                                                    26   40
          IF(LINK(IP+1).EQ.0) LINK(IP+1)=LL+1                                    26   41
          GO TO 6                                                                26   42
        7 CONTINUE                                                               26   43
          CALL UPBYT (CYCLI,KL2,CYCLC)                                           26   44
          CYCLC=CYCLC+1                                                          26   45
          J=4*KL2-3                                                              26   46
          DO 10 K=1,4                                                            26   47
          CALL UPBYT (GAABI,J,GAABC(K))                                          26   48
          CALL UPBYT (GLABI,J,GLABC(K))                                          26   49
          CALL UPBYT (GMABI,J,GMABC(K))                                          26   50
          CALL UPBYT (SABCI,J,SABCT(K))                                          26   51
          CALL UPBYT (GUABI,J,GUABC(K))                                          26   52
          CALL UPBYT (VRINI,J,VRINT(K))                                          26   53
          J=J+1                                                                  26   54
       10 CONTINUE                                                               26   55
          RETURN                                                                 26   56
          END                                                                    26   57
      *
```

2.6.80 ROUTINE W

```
UTINE: RTNA

C   •   RTNA                                                                    22    1
      SUBROUTINE RTNA                                                          22    2
      INTEGER  ADRPT,AMCC ,AMIST,AUTBF,B&GC ,      CMSET,CICTF,CLENG,          22    3
     1         CMALF,CMLNG,CMMAL,CMTAB,CNDIS,CNTLN,CONTB,CS   ,CTBDF,          22    4
     2         CURBF,CYCLC,D    ,DAYAK,DCF  ,DIS  ,DMALF,DMBDE,DB*  ,          22    5
     3         DPTNM,DS   ,DSPA ,DTLNG,      DTTAB,EMAST,ENCLC,ENINT,        22    6
     4         ENBFF,ENTFL,FLTAB,FMARK,FMC  ,FMSCF,FMSYF,FMTBD,                22    7
     5         FPPF ,FS   ,FSTFL,GAWTP,GBWTP,           GGGG ,GGGT ,          22    8
     6         GLABC,GUABC,      HBUFL,HLIDF,HLIDT,HMAST,HRF  ,HSBUF,          22    9
     7         PATNM,PTN12,PRCBD,PRTFL,PNT14,           PTN  ,PTNB1,          22   10
     8         PTNB2,PTNB3,PTNB4,PTNFP,PTN1 ,PTN2 ,QMAST,QS   ,RS   ,          22   11
     9                   SBAR ,SCCNT,SCDFC,SCNSI,SCS  ,SCTLN,SECFC,            22   12
     A         SEMSK,SHTFL,SLFDP,SLFX ,SRDIS,SS   ,SSFA ,SSSS ,STBYD,          22   13
     B         TBSIZ,TBYTE,TEAM ,THRSH,TKM  ,TRDLY,TRNSF,VHIST,V8L  ,          22   14
     C         VRINT,WMAST,WRKBF                                               22   15
      INTEGER DUMY1,DUMY2,GCNT ,SPACE                                          22   16
      INTEGER WCODE,WTEST                                                      22   17
      INTEGER WRKBFS,ENTCYC,SPLIT,CYCREF,CICINH                                22   18
      INTEGER ADVNM,CICBP,CPABG,CNTDR,CNTNM,STBTM,TIME8,QV8K                   22   19
      COMMON /WBLOCS9/ SURC9N(124),HLDSPL(4),HLDBFF(4),IGATEM,IGBTEM           22   20
      INTEGER SURC9N,HLDSPL,HLDBFF                                             22   21
      COMMON /BLK6 /  FMC          ,  FMARK        ,  MAST(9)     ,            22   22
     • MMAST       ,  JMAST        ,  KMAST        ,  EMAST       ,            22   23
     • HMAST       ,  WMAST        ,  QMAST        ,  IMAST       ,            22   24
     • SPACE       ,  MPBAY        ,  GCNT                                     22   25
      COMMON /BLK9 /  DSPA(24)     ,  FPPF         ,  KBCC        ,            22   26
     • KM          ,  LFDPN(2)     ,  NC           ,  TRDLY       ,            22   27
     2 SCTLN(138), SLFDP(11)                                                   22   28
      COMMON /BLK12/ D(138), DAYAK, JJ,                                        22   29
     • LNKSI(3)    ,  PATNM(3)     ,  PRTFL        ,  SCNSI(2)    ,            22   30
     • SCCNT(29),SSFA                                                         22   31
      COMMON /BLK14/  CLENG        ,  DTLNG        ,  CMLNG       ,            22   32
     • DUMY1, DUMY2, CNTLN(372),ENTFL(5),                                     22   33
     • KCL(17), KCTF(17), KCSF(17),                                           22   34
     • WMVAR(31)   ,  SEMSK(8)     ,  VRINT(123)   ,  LNKPT(64)               22   35
      COMMON /BLK15/  CMSET        ,  HBUFL        ,  IGPI        ,            22   36
     • WNUMF       ,  NBMCH        ,  NCW22        ,  NC*D2       ,            22   37
     • NCWRD       ,  WMANP        ,  NMCTL        ,  WMLNK       ,            22   38
     • WMSCT       ,  WMVED        ,  WPATB        ,  NPB4        ,            22   39
     • WMESP       ,  NSTM1        ,  TBSIZ        ,  TBYTE       ,            22   40
     • CS          ,  DS           ,  FS           ,  NS          ,            22   41
     • QS          ,  RS           ,  SS           ,  SCS                      22   42
      COMMON /BLK17/  ADVNM(8)     ,  CICBP(8)     ,  CPABG(8)    ,            22   43
     • IADVP(8)    ,  CNTDR(124)   ,  CNTNM        ,  IL2         ,            22   44
     • INTNM(31)   ,  ITNML(31)    ,  INTBU(32)    ,  KL2         ,            22   45
     • STBTM(32), TIME8(32), QV8K(69)                                         22   46
      COMMON /BLK18/  CICTF(8)     ,  CTBDF(8)     ,  STBYD(8)    ,            22   47
     • CONTB(62)   ,  CURBF(31)    ,  CYCLC(31)    ,  ENINT(496)  ,            22   48
     • ENBFF(31)   ,  GGGT(124)    ,  GAWTP(31)    ,  GBWTP(31)   ,            22   49
     • GLABC(124)  ,  GGGG(124)    ,  GUABC(124)   ,  INTBU(496)  ,            22   50
     • SSSS(124)   ,  TKM(31)      ,  WRKBF(31)                                22   51
      COMMON /BLK21/  DPTNM        ,  FMSCF        ,  FMSYF       ,            22   52
     • MSBUF(1072), MCDF, TEAM(69)                                            22   53
      COMMON /BLK24/ AMIST(138), CNDIS, DCF,                                   22   54
     • DSA         ,  FMTBD        ,  FSTFL        ,  HLIDF       ,            22   55
     • HLIDT(96)   ,  WMDAY        ,  PRCBD        ,  PTN(745)    ,            22   56
     • SHTFL, SRDIS, THRSH, VHIST(138)                                        22   57
      COMMON /BLK25/ AMCC(138), CMMAL(17), CMTAB(258),                         22   58
     • DTTAB(258)  ,  DIS(17)      ,  DMALF(17)    ,  DMBDE       ,            22   59
     • FLTAB(880)  ,  HRF          ,  MBDES        ,  WAI         ,            22   60
     • WBFAL, SBAR(69), SECFC(4), SCDFC(4), V8L(138)                          22   61
      COMMON /G2CMNT/ ARKBFS(124),I9(124),IEA(31),ENTCYC(31),SPLIT(124),       22   62
     1 CORPN(31)                                                               22   63
      COMMON /MISCL/ CICINH(8),LSG(3),CYCREF(5)                                22   64
      COMMON /BLK1/ LEVSSF(4),IRADRD                                           22   65
      COMMON  /WCMMN/ WCODE, WTEST, IR3                                        22   66
      COMMON /PTNCOM/ PTNB1, PTNB2, PTNB3, PTNB4                               22   67
      COMMON /ITRSP/ IR2,IR9,IR15,II                                           22   68
      DIMENSION AUTBF(8),CMALF(8),TRNSF(8),ENCLC(31),MBDE(1)                   22   69
      EQUIVALENCE (MBDES,MBDF),(ENCLC,ENTCYC)                                  22   70
      EQUIVALENCE (AUTBF(1),ADVNM(2))                                          22   71
      EQUIVALENCE (CMALF(1),CICTF(2))                                          22   72
      EQUIVALENCE (TRNSF(1),STBYD(2))                                          22   73
      IF(FMSYF.EQ.0) GO TO 1                                                   22   74
      JJ = 0                                                                   22   75
      FMSYF =                                                                  22   76
      IRADRD=0                                                                 22   77
    1 CONTINUE                                                                 22   78
      IF(FMSCF.EQ.0) GO TO 100                                                 22   79
  101 CONTINUE                                                                 22   80
      IF(DCF.NE.0) GO TO 4                                                     22   81
      CALL PTBY(LSG, JJ+1, 0)                                                  22   82
      CALL GETBY(MBDE, JJ+1, ITBY)                                             22   83
      CALL GETBI (MCDF,JJ+1,ITBI,0)                                            22   84
      IF(ITBI.NE.0) GO TO 102                                                  22   85
      IF(ITBY.EQ.0) GO TO 7                                                    22   86
  104 IF(ITBY.EQ.1) GO TO 13                                                   22   87
      IF(ITBY.EQ.3) GO TO 5                                                    22   88
      GO TO 7                                                                  22   89
  102 CONTINUE                                                                 22   90
      ITBI = 0                                                                 22   91
      LEVSSF(JJ+1)=0                                                           22   92
      IF(ITBY.NE.3) GO TO 106                                                  22   93
      CALL PTBY(PATNM,JJ+1,20D)                                                22   94
  106 CONTINUE                                                                 22   95
      CALL GETBY(JOBDE,JJ+1,JTBY)                                              22   96
      IF(JTBY.EQ.1) GO TO 6                                                    22   97
      IF(JTBY.EQ.2) GO TO 7                                                    22   98
    5 CONTINUE                                                                 22   99
```

```
      CALL PTBY(LSQ,JJ+1,1)                                          22  100
      LEVSSF(JJ+1)=1                                                 22  101
    7 CONTINUE                                                       22  102
      IR3 = FMTBO                                                    22  103
      CALL GETBY(USPA,IR3+1,ITMP)                                    22  104
      CALL PTBY(DPTNM,JJ+1,ITMP)                                     22  105
    6 CONTINUE                                                       22  106
      CALL GETBY(PATNM,JJ+1, LTBY)                                   22  107
      CALL GETBY(DPTNM,JJ+1,KTBY)                                    22  108
      IF(KTBY.NE.LTBY) GO TO 61                                      22  109
      CALL GETBY(MODE,JJ+1,ITBY)                                     22  110
      IF(ITBY.NE.0) GO TO 2                                          22  111
      GO TO 60                                                       22  112
   61 CONTINUE                                                       22  113
      DOF = 1                                                        22  114
      IRADRD=1                                                       22  115
      MAST(MAST) = 2                                                 22  116
      ACMDE = 2                                                      22  117
      CALL WSUB                                                      22  118
C     ERROR EXIT FROM READING RAD AT 611                             22  119
      IF (WTEST) 611,1000,1000                                       22  120
    4 CONTINUE                                                       22  121
      DOF = 0                                                        22  122
      CALL GETBY(SCNSI,JJ+2,MMSI)                                    22  123
      CALL GETBY(SCNSI,JJ+1,NMSI)                                    22  124
   45 NMSI = NMSI + 1                                                22  125
      CALL GETBY(SCCNT,NMSI,NN)                                      22  126
      NN=NN+1                                                        22  127
      CALL PTBI(CICINM,NN,I,I)                                       22  128
      CALL PTBI(HLOSPL,NN,0,0)                                       22  129
      CALL PTBI(HLOREF,NN,0,0)                                       22  130
      IF(NMSI .LT. MMSI)GO TO 45                                     22  131
      II = 0                                                         22  132
      JI = 0                                                         22  133
      JI4 = 0                                                        22  134
      CALL INTRP(0)                                                  22  135
      CALL GETBY(NC,JJ+1,NCBJJ)                                      22  136
   43 CONTINUE                                                       22  137
      CALL GETBY(PTN,JI4+1,PTNB1)                                    22  138
      PTNB1 = PTNBI + 1                                              22  139
      JI4 = JI4 + 1                                                  22  140
      CALL GETBY(PTN,JI4+1,PTNB2)                                    22  141
      JI4 = JI4 + 1                                                  22  142
      CALL GETBY(PTN,JI4+1,PTNB3)                                    22  143
      CALL PTBY (ENDFF,PTNB1+1,PTNB3)                                22  144
      JI4 = JI4 + 1                                                  22  145
      CALL GETBY( PTN, JI4+1, IDX)                                   22  146
      CALL GETBY(CYCREF,IDX+1,PTNB4)                                 22  147
      CALL PTBY(CYCLC,PTNB1+1,PTNB4)                                 22  148
      CALL PTBY(ENCLC,PTNB1+1,PTNB4)                                 22  149
      SSSS(PTNB1+1) = PTN(JI+2)                                      22  150
      GGGG(PTNB1+1) = PTN(JI+3)                                      22  151
      GGGT(PTNB1+1) = PTN(JI+4)                                      22  152
      CALL PTBY(TKM,PTNB1+1,PTN(JI+4))                               22  153
      PNT14 = 4*PTNB1                                                22  154
      DO 44 K = 1, 4                                                 22  155
      ENINT(PNT14+1) = PTN(JI+5)                                     22  156
      PNT14 = PNT14 + 1                                              22  157
      JI = JI + 1                                                    22  158
   44 CONTINUE                                                       22  159
      JI = JI + 4                                                    22  160
      IF(PTNB2.NE.0) GO TO 41                                        22  161
   42 CONTINUE                                                       22  162
      II = II + 1                                                    22  163
      JI4=4*JI                                                       22  164
      IF(II.GT.NCBJJ) GO TO 11                                       22  165
      GO TO 43                                                       22  166
   41 CONTINUE                                                       22  167
      GUABC(PTNB1+1) = PTN(JI+1)                                     22  168
      CALL GETBY(GUABC(PTNB1+1), 4, B4GU)                            22  169
      CALL PTBI(CTODF,PTNB1+1,B4GU,1)                                22  170
      GLABC(PTNBI+1) = PTN(JI+2)                                     22  171
      JI=JI+7                                                        22  172
      GO TO 42                                                       22  173
   11 CONTINUE                                                       22  174
      CALL INTRP(1)                                                  22  175
      CALL HALF(LNKSI,JJ+1,LSI1)                                     22  176
      CALL HALF(LNKSI,JJ+2,LSI2)                                     22  177
      LSI2 = LSI2 - LSI1                                             22  178
      IF(LSI2.LT.1) LSI2=1                                           22  179
      LI = 2*JI                                                      22  180
   46 CONTINUE                                                       22  181
      CALL HALF(SCTLN,LSI1+1,JL)                                     22  182
      CALL HALF(PTN,LI+1,IPTNH)                                      22  183
      CALL PTHLF(VHIST,JL+1,IPTNH)                                   22  184
      LI = LI + 1                                                    22  185
      CALL HALF(PTN,LI+1,JPTNH)                                      22  186
      CALL PTHLF(AHIST,JL+1,JPTNH)                                   22  187
      LI = LI + 1                                                    22  188
      LSI1 = LSI1 + 1                                                22  189
      LSI2 = LSI2 - 1                                                22  190
      IF(LSI2.GT.0) GO TO 46                                         22  191
      CALL GETBY(SCNSI,JJ+1,ISC1)                                    22  192
   50 CONTINUE                                                       22  193
      CALL GETBY(SCNSI,JJ+2,ISC2)                                    22  194
      ISC2 = ISC2 - ISC1                                             22  195
      DO 51 II=1,ISC2                                                22  196
      CALL GETBY(SCCNT,ISC1+II,ICN)                                  22  197
      CALL PATGEN(ICN+1)                                             22  198
      CALL PRBYT(IEA,ICN+1,0)                                        22  199
   51 CONTINUE                                                       22  200
      CALL GETBY(DMODE,JJ+1,JTBY)                                    22  201
      IF(JTBY.EQ.0) GO TO 2                                          22  202
      CALL GETBY(MODE ,JJ+1,ITBY)                                    22  203
      IF(ITBY.EQ.0) GO TO 111                                        22  204
      DO 52 K = 1, ISC2                                              22  205
```

```
      CALL GETBY(SCCNT,ISC1+1,ICN)                                      22  206
      CALL PTBI(TMNSF,ICN+1,1,1)                                        22  207
      ISC1 = ISC1 + 1                                                   22  208
   52 CONTINUE                                                          22  209
      GO TO 2                                                           22  210
  111 CONTINUE                                                          22  211
      DO 54 K=1,ISC2                                                    22  212
      CALL GETBY(SCCNT,ISC1+1,ICN)                                      22  213
      CALL GETBI(CMALF,ICN+1,KCN,1)                                     22  214
      IF(KCN.NE.0) GO TO 53                                             22  215
      CALL PTBI(AUTBF,ICN+1,1,1)                                        22  216
   53 CONTINUE                                                          22  217
      CALL PTBI(CICINM,ICN+1,0,1)                                       22  218
      CALL PTBI(STBYD, ICN+1,0,1)                                       22  219
      ISC1 = ISC1 + 1                                                   22  220
   54 CONTINUE                                                          22  221
    2 CONTINUE                                                          22  222
      CALL PTBI( MCDF, JJ+1, 0,0)                                       22  223
      CALL GETBY(DMODE,JJ+1,JTBY)                                       22  224
      CALL PTBY(MODE,JJ+1,JTBY)                                         22  225
   13 CONTINUE                                                          22  226
      CALL GETBY(DPTNM,JJ+1,KTBY)                                       22  227
      CALL PTBY (MATNM,JJ+1,KTBY)                                       22  228
      IF(SSFW.EQ.0) GO TO 131                                           22  229
      SSFW = 0                                                          22  230
      FMSCF = 0                                                         22  231
      MAST(MMAST) = 0                                                   22  232
      GO TO 1000                                                        22  233
  131 CONTINUE                                                          22  234
      JJ = JJ + 1                                                       22  235
      IF(JJ.LE.NSTM1) GO TO 101                                         22  236
      FMARK = 0                                                         22  237
      IF(FPPF.GT.0) FPPF = FPPF - 1                                     22  238
      FMSCF=0                                                           22  239
      MAST(MMAST) = 0                                                   22  240
      GO TO 1000                                                        22  241
C     ERROR EXIT FROM READING RAD                                       22  242
  611 CONTINUE                                                          22  243
      MAST(QMAST) = 1                                                   22  244
      SWTFL = 1                                                         22  245
 1000 CONTINUE                                                          22  246
      RETURN                                                            22  247
      END                                                               22  248
```

2.6.81 SUBROUTINE INTRP

```
ROUTINE:  INTRP

*   *   INTRP                                                          19    1
*         SUBROUTINE INTRP(I)                                          19    2
*         I = 0   DISABLE INTERUPTS                                    19    3
*           = 1   ENABLE INTERUPTS                                     19    4
*                                                                      19    5
            DEF       INTRP                                          19    6
            REF       9SETUP\                                        19    7
            RES       1                                              19    8
I           RES       1                                              19    9
            DATA      0                                              19   10
PTMP1       RES       1                                              19   11
INTRP       RES       0                                              19   12
            LI,0      1                                              19   13
            BAL,6     9SETUP\                                        19   14
            GEN,8,24  1,I                                            19   15
            STW,15    PTMP1                                          19   16
            LW,3      *I              GET INTERUPT FLAG              19   17
            BGZ       ENABLE          BRANCH TO ENABLE INTERUPTS     19   18
            LI,1      X'1000'         DISABLE INTERUPTS              19   19
            WD,1      X'1502'                                        19   20
            B         *PTMP1                                         19   21
ENABLE      RES       0                                              19   22
            LI,1      X'1000'         ENABLE INTERUPTS               19   23
            WD,1      X'1402'                                        19   24
            B         *PTMP1                                         19   25
            END                                                      19   26
```

2.6.82 SUBROUTINE PATGENT

```
RBUTINE:  PATGENT

C   *   PATGENT                                                                  20    1
      SUBROUTINE PATGENT(INT)                                                    20    2
      INTEGER ASTRT  ,AEND   ,ATIME  ,AENDP1 ,ASM1   ,ABCTIME,ABFF   ,         20    3
     1 BSTRT  ,BEND   ,BI     ,BTIME  ,BENDP1 ,BSM1   ,BBFF   ,CLC    ,         20    4
     2 CY     ,CSTRT  ,CEND   ,CENDP1 ,CSM1   ,CBFF   ,OEL    ,               20    5
     3 ENDAC  ,ENACP1 ,ENDBC  ,ENBCP1 ,ST     ,SUMTA  ,SUMTB  ,SUMTC  ,         20    6
     4 SUMT   ,SUMAC  ,SA     ,SB     ,S2T    ,SC     ,STRTAC ,STACM1 ,         20    7
     5 STRTBC ,STMCM1 ,TBBFF  ,TCBFF  ,TABFF  ,VARA   ,VARB   ,VARC   ,         20    8
     6 VARAT  ,VARBT  ,VARCT  ,CTIME                                            20    9
      COMMON /S2CONT/ WRKBFS(124),IB(124),IEA(31),ENTCYCLC(31),                  20   10
     1 SPLIT(124),CGRPN(31)                                                      20   11
      COMMON /PATNG/ ABCSTRT(124),ABCEND(124),BIAS(31),DELT(31),                 20   12
     1 SMTABC(124),SABC(124),SUMACBC(31)                                         20   13
      COMMON /BLK7 /ABGI(16)     , INTHI(31)  , INT2I(31)  ,                     20   14
     * KCTC(17), KJPH(31), STUPF, NQL(31)                                       20   15
      COMMON /BLK14/ CLENG       , DTLNG      ,  CMLNG      ,                   20   16
     * DUMY1, DUMY2, CNTLN(372),ENTFL(5),                                       20   17
     * KCL(17), KCTF(17), KCSF(17),                                            20   18
     * NMVAR(31)   ,  SEMSK(8)    , VARINT(123)  ,  LKPTR(64)                  20   19
      COMMON /BLK13/ CICTF(8)    ,  CTBDF(8)    ,  STBYD(8)    ,               20   20
     * CONTB(62)   ,  CURBF(31)   ,  CYCLC(31)  ,ENTRYINT(496)  ,             20   21
     *ENTRYBFF(31) ,  GGGT(124)   ,  GAWTP(31)   ,  GBWTP(31)   ,             20   22
     * GLABC(124)  ,  GGGG(124)   ,  GUABC(124)  ,  INTOU(496)  ,             20   23
     * SSSS(124)   ,  TKM(31)     ,  WRKBF(31)                                 20   24
C....   PURPOSE   PATGENT USES THE FOLLOWING ARRAYS                            20   25
C         ABCSTRT                  -- A/B/C PHASE START INTERVALS              20   26
C         ABCEND                   -- A/B/C PHASE END INTERVALS                20   27
C         ENTCYCLC                 -- CYCLE LENGTH CODE                        20   28
C         ENTRYINT                 -- INTERVAL DURATIONS                       20   29
C         ENTRYBFF                 -- OFFSET OF THE FIRST INTERVAL             20   30
C         INTHI                    -- LAST INTERVAL IN THE CYCLE               20   31
C         KCL                      -- CYCLE DURATIONS                          20   32
C         KJPH                     -- CONTROLLER TYPE 0,1,2,3                  20   33
C         VARINT                   -- A/B/C PHASE VARIABLE INTERVALS           20   34
C       TO COMPUTE VALUES FOR THE FOLLOWING ARRAYS                             20   35
C         BIAS(BI)                 -- TIME FM START OF A PHASE TO INTERVA      20   36
C         DELT(DEL)                -- LAG TIME FOR OVERLAPPING PHASE CONT      20   37
C         IB(ABFF,BBFF,CBFF,IFBT)  -- A/B/C PHASE OFFSETS, PHASE ORDER CO      20   38
C         SABC(SA,SB,SC)           -- A/B/C PHASE FIXED TIMES                  20   39
C         SMTABC(SUMTA,SUMTB,SUMTC,SUMT)-- LOST TIMES IN PHASES AND CYC       20   40
C         SPLIT(ST,S2T)            -- A PHASE AND C PHASE SPLITS               20   41
C         SUMACBC(SUMAC,SUMBC)     -- SUM OF FIXED INTERVALS IN OVERLAPPI      20   42
C                                                                              20   43
C....   INT = INTERSECTION NUMBER                                              20   44
C....   INTERVH = THE LAST INTERVAL IN THE CYCLE                               20   45
C....   ASTRT = A PHASE START INTERVAL                                         20   46
C....   AEND = APHASE END INTERVAL                                             20   47
C....   VARA = A PHASE VARIABLE INTERVAL                                       20   48
C....   BSTRT = B PHASE START INTERVAL                                         20   49
C....   BEND = B PHASE END INTERVAL                                            20   50
C....   VARB = B PHASE VARIABLE INTERVAL                                       20   51
C....   CLC = CYCLE LENGTH CODE OF THE INTERSECTION                            20   52
C....   CY = CYCLE LENGTH OF THE INTERSECTION                                  20   53
      CALL GETBY(INT*I,INT,INTERVH)                                            20   54
      IP9SN = 4*(INT-1) + 1                                                    20   55
      CALL GETBY(ABCSTRT,IP9SN,ASTRT)                                          20   56
      CALL GETBY(ABCEND,IP9SN,AEND)                                            20   57
      CALL GETBY(VARINT,IP9SN,VARA)                                            20   58
      VARA = VARA + 1                                                          20   59
      IP9SN = 4*(INT-1) + 2                                                    20   60
      CALL GETBY(ABCSTRT,IP9SN,BSTRT)                                          20   61
      CALL GETBY(ABCEND,IP9SN,BEND)                                            20   62
      CALL GETBY(VARINT,IP9SN,VARB)                                            20   63
      VARB = VARB + 1                                                          20   64
      CALL GETBY(ENTCYCLC,INT,CLC)                                             20   65
      CY=KCL(CLC+1)                                                            20   66
C....   INITIALIZE VALUES OF THE SMTABC, SMACBC, DELT, IB, AND SPLIT AR        20   67
      SUMTA = 0                                                                20   68
      SUMTB = 0                                                                20   69
      SUMTC = 0                                                                20   70
      SUMT = 0                                                                 20   71
      SUMAC = 0                                                                20   72
      DEL = 0                                                                  20   73
      IFBT = 0                                                                 20   74
      S2T = 0                                                                  20   75
C....   ATIME = TIME FM START OF A PHASE TO END OF A PHASE                      20   76
C....   BTIME = TIME FM START OF B PHASE TO END OF B PHASE                      20   77
C....   VARAT = TIME OF A PHASE VARIABLE INTERVAL                              20   78
C....   SA = A PHASE FIXED TIME                                                20   79
C....   VARBT = TIME  OF B PHASE VARIABLE INTERVAL                             20   80
C....   SB = B PHASE FIXED TIME                                                20   81
      CALL SMINT(INT,ASTRT,AENO,ATIME)                                         20   82
      CALL SMINT(INT,BSTRT,BENO,BTIME)                                         20   83
      IP9SN = 16*(INT-1) + VARA                                                20   84
      CALL GETBY(ENTRYINT,IP9SN,VARAT)                                         20   85
      SA = ATIME - VARAT                                                       20   86
      IP9SN = 16*(INT -1) + VARB                                               20   87
      CALL GETBY(ENTRYINT,IP9SN,VARBT)                                         20   88
      SB = BTIME - VARBT                                                       20   89
C....   BIAS IS THE TIME FROM THE START OF THE A PHASE TO INTERVAL 1.          20   90
C         BIAS IS NON-ZERO WHEN THE A PHASE DOES NOT START AT INTERVAL 1       20   91
C         AND VARA < VARB.                                                     20   92
      BI = 0                                                                   20   93
      IF(ASTRT.EQ.1) GO TO 10                                                  20   94
      CALL SMINT(INT,ASTRT,INTERVH,BI)                                         20   95
 10   CONTINUE                                                                 20   96
C....   AENDP1 AND BENDP1 ARE THE INTERVALS AFTER AEND AND BEND RESPECTI       20   97
      AENDP1 = AEND + 1                                                        20   98
```

```
      IF(AENDP1.LE.INTERVH) GO TO 20                                    20   99
      AENDP1 = AENDP1 - INTERVH                                         20  100
   20 BENDP1 = BEND + 1                                                 20  101
      IF(BENDP1.LE.INTERVH) GO TO 21                                    20  102
      BENDP1 = BENDP1 - INTERVH                                         20  103
C.... ASM1 AND BSM1 ARE  THE INTERVALS PRECEDING ASTRT AND BSTRT RESPE  20  104
   21 ASM1 = ASTRT - 1                                                  20  105
      IF(ASM1.GE.1) GO TO 22                                            20  106
      ASM1 = ASM1 + INTERVH                                             20  107
   22 BSM1 = BSTRT - 1                                                  20  108
      IF(BSM1.GE.1) GO TO 23                                            20  109
      BSM1 = BSM1 + INTERVH                                             20  110
   23 CONTINUE                                                          20  111
C.... K3PHT = THE VALUE OF K3PH FOR THE INTERSECTION                    20  112
      CALL GETBY(K3PH,INT,K3PHT)                                        20  113
      IF(K3PHT.NE.0) GO TO 40                                           20  114
C                                                                       20  115
C.... THE FOLLOWING CALCULATIONS ARE FOR A K3PH = 0 TYPE CONTROLLER     20  116
C.... SUMTA = LOST TIME BETWEEN A AND B PHASES                          20  117
      IF(AENDP1.EQ.BSTRT) GO TO 30                                      20  118
      CALL SMINT(INT,AENDP1,BSM1,SUMTA)                                 20  119
C.... SUMTB = LOST TIME BETWEEN B AND A PHASES                          20  120
   30 IF(BENDP1.EQ.ASTRT) GO TO 31                                      20  121
      CALL SMINT(INT,BENDP1,ASM1,SUMTB)                                 20  122
C.... SUMT = THE TOTAL LOST TIME IN THE CYCLE                           20  123
C.... ABCTIME = THE TOTAL PHASE TIME IN A CYCLE                         20  124
C.... ST = A PHASE TIME TIMES 1000 / THE TOTAL PHASE TIME               20  125
   31 SUMT = CY - ATIME - BTIME                                         20  126
      ABCTIME = CY - SUMT                                               20  127
      ST = ATIME*1000/ABCTIME                                           20  128
      VARC = 0                                                          20  129
      SC = 0                                                            20  130
C.... IF0T=0 IF THE A PHASE VARIABLE INTERVAL PRECEDES THE B PHASE VAR  20  131
      IF0T = 0                                                          20  132
      IF(BSTRT.NE.1) GO TO 80                                           20  133
C.... IF0T=1 IF THE B PHASE VARIABLE INTERVAL PRECEDES THE A PHASE VAR  20  134
      IF0T = 1                                                          20  135
      BI=0                                                              20  136
      GO TO 80                                                          20  137
C                                                                       20  138
C.... CALCULATIONS FOR K3PH = 1,2,3 TYPE CONTROLLERS                    20  139
   40 CONTINUE                                                          20  140
      IP0SN = 4*(INT-1) +3                                              20  141
C.... CSTRT = THE C PHASE START INTERVAL                                20  142
C.... CEND = THE C PHASE END INTERVAL                                   20  143
      CALL GETBY(ABCSTRT,IP0SN,CSTRT)                                   20  144
      CALL GETBY(ABCEND,IP0SN,CEND)                                     20  145
C.... CENDP1 = THE INTERVAL FOLLOWING CEND                              20  146
      CENDP1 =CEND + 1                                                  20  147
      IF(CENDP1.LE.INTERVH) GO TO 41                                    20  148
      CENDP1 = CENDP1 - INTERVH                                         20  149
C.... CSM1 = THE INTERVAL PRECEDING CSTRT                               20  150
   41 CSM1 = CSTRT - 1                                                  20  151
      IF(CSM1.GE.1) GO TO 42                                            20  152
      CSM1 = CSM1 + INTERVH                                             20  153
   42 CONTINUE                                                          20  154
C.... CTIME = THE TIME OF C PHASE                                       20  155
      CALL SMINT(INT,CSTRT,CEND,CTIME)                                  20  156
      GO TO(45,60,70),K3PHT                                             20  157
C                                                                       20  158
C.... THE FOLLOWING CALCULATIONS ARE FOR A K3PH = 1 TYPE CONTROLLER     20  159
C.... SUMT = LOST TIME DURING THE CYCLE                                 20  160
C.... ABCTIME = THE TOTAL PHASE TIME IN THE CYCLE                       20  161
C.... ST = THE A PHASE SPLIT                                            20  162
C.... S2T = THE C PHASE SPLIT                                           20  163
C.... VARC = C PHASE VARIABLE INTERVAL                                  20  164
C.... VARCT = THE TIME LENGTH OF THE C PHASE VARIABLE INTERVAL          20  165
C.... SC = C PHASE FIXED TIME                                           20  166
   45 SUMT = CY - ATIME - BTIME - CTIME                                 20  167
      ABCTIME = CY - SUMT                                               20  168
      ST = ATIME*1000/ABCTIME                                           20  169
      S2T = CTIME*1000/ABCTIME                                          20  170
      IP0SN = 4*(INT-1) + 3                                             20  171
      CALL GETBY(VARINT,IP0SN,VARC)                                     20  172
      VARC = VARC + 1                                                   20  173
      IP0SN = 16*(INT-1) + VARC                                         20  174
      CALL GETBY(ENTRYINT,IP0SN,VARCT)                                  20  175
      SC = CTIME - VARCT                                                20  176
C.... IF THE PHASE ORDER IS ABC CONTINUE                                20  177
C.... IF THE PHASE ORDER IS ACB GO TO 55                                20  178
      IF(VARB.GT.VARC) GO TO 55                                         20  179
C.... IF0T=0 IF THE B PHASE VARIABLE INTERVAL PRECEDES THE C PHASE VAR  20  180
      IF0T = 0                                                          20  181
C.... LOST TIME BETWEEN A TO B, B TO C, AND C TO A PHASES ARE COMPUTED  20  182
C       AS SUMTA, SUMTB, AND SUMTC RESPECTIVELY                         20  183
      IF(AENDP1.EQ.BSTRT) GO TO 50                                      20  184
      CALL SMINT(INT,AENDP1,BSM1,SUMTA)                                 20  185
   50 IF(BENDP1.EQ.CSTRT) GO TO 51                                      20  186
      CALL SMINT(INT,BENDP1,CSM1,SUMTB)                                 20  187
   51 IF(CENDP1.EQ.ASTRT) GO TO 58                                      20  188
      CALL SMINT(INT,CENDP1,ASM1,SUMTC)                                 20  189
      GO TO 58                                                          20  190
C.... IF0T=1 IF THE C PHASE VARIABLE INTERVAL PRECEDES THE B PHASE VAR  20  191
   55 IF0T = 1                                                          20  192
C.... LOST TIME BETWEEN A TO C, C TO B, B TO A PHASES ARE COMPUTED      20  193
C       AS SUMTC, SUMTA, AND SUMTB RESPECTIVELY                         20  194
      IF(AENDP1.EQ.CSTRT) GO TO 56                                      20  195
      CALL SMINT(INT,AENDP1,CSM1,SUMTA)                                 20  196
   56 IF(CENDP1.EQ.BSTRT) GO TO 57                                      20  197
      CALL SMINT(INT,CENDP1,BSM1,SUMTC)                                 20  198
   57 IF(BENDP1.EQ.ASTRT) GO TO 58                                      20  199
      CALL SMINT(INT,BENDP1,ASM1,SUMTB)                                 20  200
   58 CONTINUE                                                          20  201
      GO TO 80                                                          20  202
C                                                                       20  203
C.... THE FOLLOWING CALCULATIONS ARE FOR A K3PH = 2 TYPE CONTROLLER     20  204
```

```
 60   CONTINUE                                                          20  205
C....   IF ASTRT = CSTRT, THE START OF THE A/C PHASE = ASTRT.           20  206
C       IF CSTRT IS <OR= VARA, THE START OF THE A/C PHASE = ASTRT       20  207
      STRTAC = ASTRT                                                    20  208
C.....  STACM1 = STRTAC MINUS 1 INTERVAL                                20  209
      STACM1 = ASM1                                                     20  210
      IF(ASTRT.EQ.CSTRT) GO TO 62                                       20  211
      IF(CSTRT.LE.VARA) GO TO 61                                        20  212
C....   THE FOLLOWING EQUALITIES HOLD WHEN THE A/C PHASE BEGINS WITH CST 20  213
      STRTAC = CSTRT                                                    20  214
      STACM1 = CSM1                                                     20  215
C....   IF C PHASE LEADS A PHASE THEN DEL = DEL + 128                   20  216
      CALL SMINT(INT,CSTRT,ASM1,DEL)                                    20  217
      DEL = DEL + 128                                                   20  218
      GO TO 62                                                          20  219
C....   DEL = THE TIME FROM THE A PHASE START TO THE C PHASE START      20  220
 61   CALL SMINT(INT,ASTRT,CSM1,DEL)                                    20  221
 62   CONTINUE                                                          20  222
C....   IF AEND IS >OR= CEND, THE A/C PHASE END = AEND                  20  223
      ENDAC = AEND                                                      20  224
C....   ENACM1 = ENDAC PLUS 1 INTERVAL                                  20  225
      ENACP1 = AENDP1                                                   20  226
      IF(AEND.GE.CEND) GO TO 63                                         20  227
C....   IF CEND IS GREATER THAN AEND, THE A/C PHASE END = CEND          20  228
      ENDAC = CEND                                                      20  229
      ENACP1 = CENDP1                                                   20  230
C....   ATIME = TIME OF A/C PHASE                                       20  231
 63   CALL SMINT(INT,STRTAC,ENDAC,ATIME)                                20  232
C....   SUMTA =  THE LOST TIME FROM THE A/C PHASE TO THE B PHASE        20  233
      IF(ENACP1.EQ.BSTRT) GO TO 64                                      20  234
      CALL SMINT(INT,ENACP1,BSM1,SUMTA)                                 20  235
C....   SUMTB = THE LOST TIME FROM THE B PHASE TO THE A/C PHASE         20  236
 64   IF(BENDP1.EQ.STRTAC) GO TO 65                                     20  237
      CALL SMINT(INT,BENDP1,STACM1,SUMTB)                               20  238
C....   SUMT = THE LOST TIME PER CYCLE                                  20  239
C....   ABCTIME = PHASE TIME PER CYCLE                                  20  240
C....   SUMAC = A/C PHASE FIXED TIME                                    20  241
C....   SC = C PHASE FIXED TIME                                         20  242
C....   ST = A/C PHASE SPLIT                                            20  243
 65   SUMT = CY - ATIME - BTIME                                         20  244
      ABCTIME = CY - SUMT                                               20  245
      SUMAC = ATIME - VARAT                                             20  246
      SC = CTIME - VARAT                                                20  247
      ST = ATIME*100/ABCTIME                                            20  248
      GO TO 80                                                          20  249
C                                                                       20  250
C....   THE FOLLOWING CALCULATIONS ARE FOR A K3PH = 3 TYPE CONTROLLER   20  251
 70   CONTINUE                                                          20  252
C....   IF BSTRT IS LESS THAN OR EQUAL TO CSTRT,THE B/C PHASE START = BS 20  253
      STRTBC = BSTRT                                                    20  254
C....   STBCM1 = STRTBC MINUS 1 INTERVAL                                20  255
      STBCM1 = BSM1                                                     20  256
      IF(BSTRT.EQ.CSTRT) GO TO 72                                       20  257
      IF(BSTRT.LT.CSTRT) GO TO 71                                       20  258
C....   IF CSTRT IS LESS THAN BSTRT, THE B/C PHASE START = CSTRT        20  259
      STRTBC = CSTRT                                                    20  260
      STBCM1 = CSM1                                                     20  261
C....   IF C PHASE LEADS B PHASE, DEL = DEL + 128                       20  262
      CALL SMINT(INT,CSTRT,BSM1,DEL)                                    20  263
      DEL = DEL + 128                                                   20  264
      GO TO 72                                                          20  265
C....   DEL = THE TIME FROM THE B PHASE START TO THE C PHASE START      20  266
 71   CALL SMINT(INT,BSTRT,CSM1,DEL)                                    20  267
 72   CONTINUE                                                          20  268
C....   IF BEND IS GREATER THAN OR EQUAL TO CEND, THE B/C PHASE END = BE 20  269
      ENDBC = BEND                                                      20  270
C....   ENDBCP1 = ENDBC PLUS 1 INTERVAL                                 20  271
      ENBCP1 = BENDP1                                                   20  272
      IF(BEND.GE.CEND) GO TO 73                                         20  273
C.....  IF CEND IS GREATER THAN BEND, THE B/C PHASE END = CEND          20  274
      ENDBC= CEND                                                       20  275
      ENBCP1 = CENDP1                                                   20  276
C....   BTIME = THE TIME OF THE B/C PHASE                               20  277
 73   CALL SMINT(INT,STRTBC,ENDBC,BTIME)                                20  278
C....   SUMTA = LOST TIME BETWEEN A PHASE TO B/C PHASE                  20  279
      IF(AENDP1.EQ.STRTBC) GO TO 74                                     20  280
      CALL SMINT(INT,AENDP1,STBCM1,SUMTA)                               20  281
C....   SUMTB = LOST TIME  BETWEEN B/C PHASE TO  A PHASE                20  282
 74   IF(ASM1.EQ.ENDBC) GO TO 75                                        20  283
      CALL SMINT(INT,ENBCP1,ASM1,SUMTB)                                 20  284
C....   SUMT = THE TOTAL LOST TIME PER CYCLE                            20  285
C....   ABCTIME = THE TOTAL PHASE TIME PER CYCLE                        20  286
C....   SUMAC = THE B/C PHASE FIXED TIME                                20  287
C....   SC = THE C PHASE FIXED TIME                                     20  288
C....   ST = THE A PHASE SPLIT                                          20  289
 75   SUMT = CY - ATIME - BTIME                                         20  290
      ABCTIME = CY - SUMT                                               20  291
      SUMAC = BTIME - VARBT                                             20  292
      SC = CTIME - VARBT                                                20  293
      ST = ATIME*100/ABCTIME                                            20  294
 80   CONTINUE                                                          20  295
      CALL GETBY(ENTRYBFF,INT,ABFF)                                     20  296
C....   THE A PHASE OFFSET IS CORRECTED BY SUBTRACTING THE BIAS         20  297
C       BIAS = THE TIME FROM THE START OF A PHASE TO INTERVAL 1         20  298
      ABFF = ABFF - BI                                                  20  299
      IF(ABFF.GE.0) GO TO 81                                            20  300
C....   ABFF IS ADJUSTED TO BE GREATER THAN 0                           20  301
      ABFF = ABFF + CY                                                  20  302
 81   IF(ABFF.LT.CY) GO TO 82                                           20  303
      ABFF = ABFF - CY                                                  20  304
 82   CONTINUE                                                          20  305
C....   BBFF = ABFF + THE TIME FROM A PHASE TO B PHASE                  20  306
      CALL SMINT(INT,ASTRT,BSM1,TBBFF)                                  20  307
      BBFF = TBBFF + ABFF                                               20  308
      IF(BBFF.LT.CY) GO TO 83                                           20  309
      BBFF = BBFF - CY                                                  20  310
```

```
 83   CONTINUE                                                          20  311
C.....  COFF = AOFF + THE TIME FROM A PHASE TO C PHASE                  20  312
       COFF = 0                                                         20  313
       IF(KOPHT.EQ.0) GO TO 84                                          20  314
       CALL SMINT(INT,ASTRT,CSM1,TCOFF)                                 20  315
       COFF = TCOFF + AOFF                                              20  316
       IF(COFF.LT.CY) GO TO 84                                          20  317
       COFF = COFF - CY                                                 20  318
 84   CONTINUE                                                          20  319
C.....  IF KOPH = 0 AND IFOT = 1, AOFF AND BOFF ARE INTERCHANGED        20  320
       IF(K3PHT.NE.0.OR.IFOT.EQ.0) GO TO 85                             20  321
       BOFF=AOFF                                                        20  322
       CALL SMINT(INT,BSTRT,ASM1,TAOFF)                                 20  323
       AOFF=BOFF+TAOFF                                                  20  324
       IF(AOFF.LT.CY) GO TO 85                                          20  325
       AOFF=AOFF-CY                                                     20  326
 85   CONTINUE                                                          20  327
C.....  COMPUTED RESULTS ARE PACKED INTO THE IO, SMTABC, SABC, SPLIT, SU 20  328
C       BIAS, AND DELT ARRAYS                                           20  329
       CALL PTBY(BIAS,INT,BI)                                           20  330
       CALL PTBY(DELT,INT,DEL)                                          20  331
       CALL PTBY(SUMABC,INT,SUMAC)                                      20  332
       IPOSN = 2*INT +1                                                 20  333
       CALL PTHLF(SPLIT,IPOSN,ST)                                       20  334
       IPOSN = 2*INT                                                    20  335
       CALL PTHLF(SPLIT,IPOSN,S2T)                                      20  336
       IPOSN = 4*INT - 3                                                20  337
       CALL PTBY(IO,IPOSN,AOFF)                                         20  338
       CALL PTBY(SMTABC,IPOSN,SUMTA)                                    20  339
       CALL PTBY(SABC,IPOSN,SA)                                         20  340
       IPOSN = 4*INT - 2                                                20  341
       CALL PTBY(IO,IPOSN,BOFF)                                         20  342
       CALL PTBY(SMTABC,IPOSN,SUMTB)                                    20  343
       CALL PTBY(SABC,IPOSN,SB)                                         20  344
       IPOSN = 4*INT - 1                                                20  345
       CALL PTBY(IO,IPOSN,COFF)                                         20  346
       CALL PTBY(SMTABC,IPOSN,SUMTC)                                    20  347
       CALL PTBY(SABC,IPOSN,SC)                                         20  348
       IPOSN = 4*INT                                                    20  349
       CALL PTBY(IO,IPOSN,IFOT)                                         20  350
       CALL PTBY(SMTABC,IPOSN,SUMT)                                     20  351
       CONTINUE                                                         20  352
       RETURN                                                           20  353
       END                                                              20  354
```

2.6.83 SUBROUTINE SMINT

```
ROUTINE: SMINT

      C   *   SMINT                                                          21    1
          SUBROUTINE SMINT(IC,KL,KH,ISM)                                    21    2
          COMMON /BLK/ /ABGI(16)    , INTMI(31)  , INT2I(31)  ,             21    3
         * KLTC(17),K3PHI(31),STUPF,NOL(31)                                 21    4
          COMMON /BLK18/  CICTF(8)     , CTBDF(8)     , STBYB(8)     ,      21    5
         * CMATB(62)    ,  CURBF(31)    ,  CYCLC(31)   ,  ENINT(496)  ,     21    6
         * ENBEF(31)    ,  GGGT(124)    ,  GAWTP(31)   ,  GRATP(31)   ,     21    7
         * GLABC(124)   ,  GGGG(124)    ,  GUABC(124)  ,  INTDU(496)  ,     21    8
         * SSSS(124)    ,  TKM(31)      ,  WRKBF(31)                        21    9
          ISM=0                                                             21   10
          CALL GETBY(INTMI,IC,JH)                                           21   11
          IL=KL                                                             21   12
          IH=KH                                                             21   13
          IF(IL.LE.0) IL=IL+JH                                              21   14
          IF(IH.LE.0) IH=IH+JH                                              21   15
          IF(IL.GT.JH) IL=IL-JH                                             21   16
          IF(IH.GT.JH) IH=IH-JH                                             21   17
          I=IL                                                              21   18
          JC=16*(IC-1)                                                      21   19
       10 JDX=JC+I                                                          21   20
          CALL GETBY(ENINT,JDX,JSM)                                         21   21
          ISM=ISM+JSM                                                       21   22
          IF(I.EQ.IH) RETURN                                                21   23
          I=I+1                                                             21   24
          IF(I.GT.JH) I=1                                                   21   25
          GO TO 10                                                          21   26
          END                                                               21   27
```

2.6.84 SUBROUTINE WCODE

```
ROUTINE:  *CODE,*TEST,IR3

     *  *  *CODE,*TEST,IR3                                          10    1
           DEF       *CODE                                         10    2
           DEF       *TEST                                         10    3
           DEF       IR3                                           10    4
*CMMN      DSECT                    RTN* AND *SUB COMMON          10    5
*CODE      RES       0              DETERMINES ENTRANCE           10    6
           DATA      0                                            10    7
*TEST      DATA      0              SET BY *SUB FOR TESTING BY RTN* 10   8
IR3        DATA      0              INDEX TO HAD STARTING ADDRESS 10    9
           END                                                    10   10
```

2.6.85 SUBROUTINE WSUB

```
RBUTINE: *SUB

*  *   *SUB                                                                 9    1
         DEF     *SUB                                                       9    2
         REF     DPATNUM                                                    9    3
         REF     DSPA                                                       9    4
         REF     ENDACT*                                                    9    5
         REF     HBUFLNG                                                    9    6
         REF     HSBUF                                                      9    7
         REF     IR3                                                        9    8
         REF     JJ                                                         9    9
         REF     LFDPN                                                      9   10
         REF     NUMSCT                                                     9   11
         REF     PTN                                                        9   12
         REF     SHTFLG                                                     9   13
         REF     SLFDPN                                                     9   14
         REF     *CODE                                                      9   15
         REF     *TEST                                                      9   16
*SUB     RES     0                                                          9   17
         LCI     0                                                          9   18
         STM,D   SREGS              SAVE REGISTERS                         9   19
         LI,1    0                                                          9   20
         ST*,1   *TEST              CLEAR *TEST                            9   21
         L*,1    *CODE                                                      9   22
         CI,1    1                                                          9   23
         BNE     *61                                                        9   24
         LM,3    IR3                (D8*-1)*96+FMTOD                        9   25
         LB,4    DSPA,3             DISC STARTING POINT ADDRESS             9   26
         LI,2    1                  INDEX FOR SECOND HALF OF *SRD           9   27
         CM,4    ADFPT+6,2                                                  9   28
         BE      EXIT               IF EQUAL GO TO EXIT                     9   29
         STM,4   ADFPT+6,2                                                  9   30
         CAL1,1  ADFPT                                                      9   31
         LI,1    1                                                          9   32
         ST*,1   *TEST              *TEST = + OR - FOR TESTING BY RTN*      9   33
         B       EXIT                                                       9   34
*                                                                           9   35
*61      RES     0                                                          9   36
         L*,3    JJ,                                                        9   37
         LB,5    DPATNUM,3                                                  9   38
         M*,5    NUMSCT                                                     9   39
         A*,5    3                                                          9   40
         LM,4    LFDPN,3            R4 = NO. OF BYTES IN PATTERN            9   41
         LB,11   SLFDPN,5           R11 = FILE KEY FOR PATNUM               9   42
         LI,2    1                  INDEX FOR RIGHT HALF OF *SRD            9   43
         STM,11  PTNFPT+6,2                                                 9   44
         STM,4   PTNFPT+5,2                                                 9   45
         CAL1,1  PTNFPT             READ PTN                                9   46
EXIT     RES     0                                                          9   47
         LCI     0                                                          9   48
         LM,D    SREGS              RESTORE REGISTERS                       9   49
         B       *15                                                        9   50
*                                                                           9   51
PTNFPT   GEN,8,24  X'1D',FDPTN                                              9   52
         GEN,4,4,2,22 *15,1,3,0                                             9   53
         DATA    RADER*,RADER*      ERROR AND ABNORMAL ADDRESSES            9   54
         DATA    PTN                                                        9   55
         DATA    2080                                                       9   56
         DATA    0                                                          9   57
         DATA    ENDACT*                                                    9   58
         DATA    -1                                                         9   59
FDPTN    GEN,8,24  7,1                                                      9   60
         DATA,1  5,0,9,0                                                    9   61
         DATA    0,0,0                                                      9   62
         TEXT    'PTN     '                                                 9   63
*  FILE POINTER FOR READING FROM RAD INTO HSBUF                            9   64
ADFPT    GEN,8,24  X'1D',FORD*                                              9   65
         GEN,4,4,2,22 15,1,3,0                                              9   66
         DATA    RADER*             ERROR ADDRESS                           9   67
         DATA    RADER*             ABNORMAL ADDRESS                        9   68
         DATA    HSBUF              BUFFER ADDRESS                          9   69
         DATA    HBUFLNG            BYTE COUNT                              9   70
*        FORCE READING OF HSBUF AT START UP                                 9   71
         DATA,2  0                                                          9   72
         DATA,2  *1                 GRANULE NUMBER                          9   73
         DATA    ENDACT*                                                    9   74
         DATA    0                                                          9   75
FORD*    GEN,8,24  7,1                                                      9   76
         DATA,1  5,0,9,0            D4                                      9   77
         DATA    0                                                          9   78
         DATA    0                                                          9   79
         DATA    0                                                          9   80
         TEXT    'HSBUF'                                                    9   81
RADER*   CAL1,2  RADERR                                                     9   82
         LI,1    *1                                                         9   83
         ST*,1   *TEST              NEG FOR ERROR                           9   84
         B       EXIT                                                       9   85
RADERR   GEN,8,24  2,0                                                      9   86
         GEN,8,24  3,0                                                      9   87
         DATA    RADMESS                                                    9   88
RADMESS  TEXTC   '  RAD READ ERROR ***ATTEMPING SHUTDOWN'                   9   89
SREGS    DATA    0,0,0,0,0,0,0,0    REGISTERS 0-7                           9   90
         DATA    0,0,0,0,0,0,0,0    REGISTERS 8-15                          9   91
         END                                                                9   92
```

2.6.86 ROUTINE X

```
ROUTINE: RTNX

C   *   RTNX                                                                  29    1
      SUBROUTINE RTNX                                                        29    2
      COMMON /BLK6 / FMC        , FMARK      , MAST(9)    ,                  29    3
     * MMAST       , JMAST      , KMAST      , EMAST      ,                  29    4
     * HMAST       , WMAST      , QMAST      , IMAST      ,                  29    5
     * SPACE       , MPBKY                                                  29    6
      COMMON /BLK7 /ABGI(16)    , INTHI(31)  , INT2I(31)  ,                  29    7
     * KCTC(17),KJPHI(31),STUPF,NGL(31)                                     29    8
      COMMON /BLK14/ CLENG      , DTLNG      , CMLNG      ,                  29    9
     * DUMY1       , DUMY2,                                                 29   10
     * CNTLI(372), ENTFL(6), KCL(17), KCTF(17),                            29   11
     * KCSF(17), NMVAI(31), SMSKI(8),                                       29   12
     * VRINI(123)  , LNKPT(64)                                              29   13
      COMMON /BLK17/ ADVNI(8)   , CICBI(8)   , CABGI(8)   ,                29   14
     * IADPI(8)    , CNTDR(124) , CNTNM      , IL2        ,                29   15
     * INTMI(31)   , INTLI(31)  , INTBI(32)  , KL1        ,                29   16
     * STBTI(32), TIMEI(32), QVBKI(69)                                      29   17
      COMMON /BLK18/ CICTI(8)   , CTBDI(8)   , STBDI(8)   ,                29   18
     * CMNTI(62)   , CURBI(31)  , CYCLI(31)  , ENINI(496) ,                29   19
     * ENBFI(31)   , GAABI(124) , GAWTI(31)  , GBWTI(31)  ,                29   20
     * GLABI(124)  , GMABI(124) , GUABI(124) , INTDI(496) ,                29   21
     * SABCI(124)  , TWMI(31)   ,WRKBI(31)                                  29   22
      COMMON /S2CONT/ WRKBFS(124),IB(124),IEA(31),ENTCYC(31),SPLIT(124),   29   23
     1 CURPN(31)                                                           29   24
      COMMON/BITL2/BITAR(640)                                              29   25
      DIMENSION ADVNM(32),ABG(32),APB(32),AUTBF(32),CICBP(32),             29   26
     1CICEF(32),CICTF(32),CTBDF(32),CMALF(32),CPABG(32),FSTCF(32),         29   27
     2HBLD(32),IADVP(32),INT1S(32),SEMSK(32),SPLCH(32),STBYD(32),          29   28
     3STRTA(32),TRNSF(32),CICSF(32)                                        29   29
      EQUIVALENCE                                                          29   30
     1(ADVNM,BITAR(  1)),(ABG  ,BITAR( 33)),(APB  ,BITAR( 65)),           29   31
     2(AUTBF,BITAR( 97)),                                                 29   32
     1(CICBP,BITAR(129)),(CICEF,BITAR(161)),(CICSF,BITAR(193)),           29   33
     1(CICTF,BITAR(225)),(CTBDF,BITAR(257)),(CMALF,BITAR(289)),           29   34
     3(CPABG,BITAR(321)),(FSTCF,BITAR(353)),(HBLD ,BITAR(385)),           29   35
     4(IADVP,BITAR(417)),(INT1S,BITAR(449)),(SEMSK,BITAR(481)),           29   36
     5(SPLCH,BITAR(513)),(STRTA,BITAR(545)),(STBYD,BITAR(577)),           29   37
     6(TRNSF,BITAR(609))                                                  29   38
      INTEGER ADVNM,ABG,APB,AUTBF,BPSIF,BTRNF,CICBP,CICEF,CICSF,           29   39
     1CICTF,CTBDF,CMALF,CPABG,FSTCF,GAI,HBLD,SEMSK,SPLCH,STBYD,           29   40
     2STRTA,TRNSF                                                         29   41
      COMMON /BYTL2/IC8N,JL2,KL2,IDECR,WSL2(50)                            29   42
      COMMON /SEMC9/ SEMAC(20),SEMCT                                       29   43
      INTEGER AMBPN,CBNTB,CNTLN,CYCLC,ENINT,GAABC,GAWTP,GBWTP,             29   44
     1GLABC,GMABC,LDSET,QCICT,QGG,QQRR,QVBK,RRR,STETM,SABCT,TEWCT,TIMEB,  29   45
     2TKM,VBL,VBT                                                         29   46
      INTEGER AMBPI,CBNTI,CNTLI,CYCLI,ENINI,GAABI,GAWTI,GBWTI,GUABI,       29   47
     1GLABI,GMABI,QCICI,QGGI,QQRRI,QVBKI,RRRI,STBTI,SABCI,TEWCI,TIMEI,    29   48
     2TKMI,VBLI,VBTI                                                      29   49
      INTEGER WRKBI,ENBFI,CURBI,VRINI                                      29   50
      INTEGER CLENG,CNTDR,EMAST,STUPF,ENTFL                                29   51
      INTEGER CURBF,ENBFF,VRINT,WRKBF,WSL2                                 29   52
      INTEGER ENBF,CURF,WRKF                                               29   53
      INTEGER BITAR                                                        29   54
      EQUIVALENCE (YIELD,BITAR(417))                                       29   55
      DIMENSION YIELD(32),INTDU(2)                                         29   56
      EQUIVALENCE ((INTDU,WSL2(1))),(IEI1,WSL2(3)),(IEI2,WSL2(4)),         29   57
     1(ISHF,WSL2(5)),(INTNM,WSL2(6)),(INDEX,WSL2(7)),(I,WSL2(8)),         29   58
     1(IT,WSL2(9)),(EPS,WSL2(10)),(EPST,WSL2(11)),(IR1C,WSL2(12))         29   59
      INTEGER SEMAC,SEMCT                                                  29   60
      INTEGER EPS,EPST,YIELD                                               29   61
C  ** SET I TO INITIAL CONTROLLER                                          29   62
                                                                           29   63
      J=1                                                                  29   64
    2 ISHF=SEMAC(J)                                                        29   65
      IF ((ISHF.GT.IC8N).AND.(ISHF.LE.(IC8N+32))) GO TO 4                  29   66
      GO TO 3                                                              29   67
    4 I=ISHF-IC8N                                                          29   68
      IEI1=10*ISHF-15                                                      29   69
      IEI2=IEI1+1                                                          29   70
C  ** CHECK TO SEE IF CONTROLLER IS IN STANDBY                             29   71
      IF (HBLD(I).NE.0) GO TO 10                                           29   72
C  ** CONTROLLER IS IN STANDBY CHECK TO SEE IF AUTOMATIC CONTROL           29   73
C  ** IS DESIRED                                                           29   74
      TRNSF (I) = 0                                                        29   75
      STBYD (I) = 0                                                        29   76
      FSTCF (I) = 0                                                        29   77
      IF (AUTBF(I).EQ.0) GO TO 3                                           29   78
C  ** AUTOMATIC CONTROL DESIRED CHECK TO SEE IF CORRECTED A PHASE GREEN     29   79
C  ** RETURN IS SET                                                        29   80
      IF (ABG(I).EQ.0) GO TO 3                                             29   81
C  ** ABG SET = SET INTNM TO SECOND INTERVAL AND INTDU TO ENTRY            29   82
C  ** INTERVALS                                                            29   83
      INTNM = 2                                                            29   84
      CALL PKBYT(INTMI,ISHF,INTNM)                                         29   85
C  ** UNPACK ENINT                                                         29   86
      CALL UPBYT (ENINI,IEI1,INTDU(1))                                     29   87
      CALL UPBYT (ENINI,IEI2,INTDU(2))                                     29   88
C  ** PACK INTDU                                                           29   89
      CALL PKBYT(INTDI,IEI1,INTDU(1))                                      29   90
      CALL PKBYT(INTDI,IEI2,INTDU(2))                                      29   91
      CNTDR(ISHF)=INTDU(2)                                                 29   92
      HBLD (I) = 1                                                         29   93
      CALL PKBYT(STBTI,ISHF,0)                                             29   94
      CALL UPBYT(ENBFI,ISHF,ENBF)                                          29   95
      CALL PKBYT(WRKBI,ISHF,ENBF)                                          29   96
      CALL UPBYT(ENTCYC,ISHF,TMP)                                          29   97
      IIJ=40*(ISHF-1)                                                      29   98
```

```
      DO 9 IJK=1,4                                                    29   99
      IJJ=IIJ+IJK                                                     29  100
      CALL UPBYT(10,IJJ,TMP)                                          29  101
      CALL PKBYT(MRKOFS,IJJ,TMP)                                      29  102
    9 CONTINUE                                                        29  103
      GO TO 3                                                         29  104
C  **                                                                 29  105
C  ** CONTROLLER UNDER COMPUTER CONTROL                              29  106
   10 AUTOF (I) = 0                                                   29  107
C  ** STEP DOWN COUNTDOWN REGISTER                                   29  108
      CNTDR(ISHF)=CNTDR(ISHF)-IDECR                                   29  109
C  ** IF REGISTER NOT YET COUNTED DOWN PASS TO NEXT CONTROLLER       29  110
      IF(CNTDR(ISHF).GT.0) GO TO 3                                    29  111
C  ** IS CONTROLLER IN SECOND INTERVAL  IF NOT PASS TO 2 AND ATTEMPT  29  112
C  ** TO SET YIELD FLAG                                              29  113
      CALL UPBYT (INTMI,ISHF,INTNM)                                   29  114
      IF (INTNM.EQ.1) GO TO 1                                         29  115
      INTNM=1                                                         29  116
      CALL PKBYT(INTMI,ISHF,INTNM)                                    29  117
C  ** PASS TO 2 AND CHECK TO SEE IF TRANSITION FLAG IS SET - IF SO    29  118
C  ** CHANGE INTERVAL DURATIONS AND OFFSET                           29  119
      IF (TRNSF (I).EQ.0) GO TO 11                                    29  120
C  ** UNPACK NEW INTERVALS                                           29  121
      CALL UPBYT (ENINI,IEI1,INTDU(1))                                29  122
      CALL UPBYT (ENINI,IEI2,INTDU(2))                                29  123
C  ** PACK NEW INTERVALS                                             29  124
      CALL PKBYT(INTDI,IEI1,INTDU(1))                                 29  125
      CALL PKBYT(INTDI,IEI1,INTDU(2))                                 29  126
      CALL UPBYT(ENOF,ISHF,ENOF)                                      29  127
      CALL PKBYT(MRKOI,ISHF,ENOF)                                     29  128
      CALL UPBYT(ENTCYC,ISHF,TMP)                                     29  129
      CALL PKBYT(CYCLI,ISHF,TMP)                                      29  130
      IIJ=4*(ISHF-1)                                                  29  131
      DO 101 IJK=1,4                                                  29  132
      IJJ=IIJ+IJK                                                     29  133
      CALL UPBYT(10,IJJ,TMP)                                          29  134
      CALL PKBYT(MRKOFS,IJJ,TMP)                                      29  135
  101 CONTINUE                                                        29  136
      TRNSF (I) = 0                                                   29  137
C  ** CALCULATE NEW COUNT DOWN REGISTER                              29  138
   11 FSTCF (I) = 0                                                   29  139
C  ** UNPACK CYCLE LENGTH CODE                                       29  140
      CALL UPBYT (CYCLI,ISHF,INDEX)                                   29  141
      INDEX=INDEX+1                                                   29  142
      CURF=KCTC(INDEX)                                                29  143
      CALL PKBYT(CURRI,ISHF,CURF)                                     29  144
      CALL UPBYT(MRKRI,ISHF,MRKF)                                     29  145
      EPS=MRKF-KCTC(INDEX)                                            29  146
      IF (EPS.EQ.0) GO TO 12                                          29  147
      EPST = EPS+8                                                    29  148
      IF (EPST.GE.0) GO TO 13                                         29  149
      EPS = EPS + KCL (INDEX)                                         29  150
      GO TO 12                                                        29  151
   13 EPST = EPST + KCL (INDEX)                                       29  152
      IF (EPST.LE.0) GO TO 12                                         29  153
      EPS = EPS + KCL (INDEX)                                         29  154
C  ** UNPACK DURATION OF FIRST INTERVAL                              29  155
   12 CALL UPBYT (INTDI,IEI1,INTDU (1))                               29  156
      CNTDR(ISHF)=INTDU(1)+EPS                                        29  157
      GO TO 3                                                         29  158
C  ** CONTROLLER SET TO SEND YIELD PULSE - CHECK TO SEE THAT ABG FLAG 29  159
C  ** IS SET                                                         29  160
C  ** SET CONTROLLER TO SECOND INTERVAL                              29  161
    1 INTNM = 2                                                       29  162
      CALL PKBYT(INTMI,ISHF,INTNM)                                    29  163
      IF (ABG(I) .EQ.0) GO TO 14                                      29  164
C  ** CHECK TO SEE THAT STANDBY DESIRED FLAG IS NOT SET              29  165
      IF (STBYD(I).NE.0) GO TO 15                                     29  166
C  ** SET COUNTDOWN REGISTER TO SECOND INTERVAL AND SET YEILD FLAG    29  167
      CALL UPBYT (INTDI,IEI2,CNTDR(ISHF))                             29  168
      YIELD (I) = 1                                                   29  169
      GO TO 3                                                         29  170
C  ** ERROR ROUTINE                                                  29  171
   14 CMALF (I) = 1                                                   29  172
      HOLD (I) = 0                                                    29  173
      ENTFL(1)=0                                                      29  174
      CALL PKHA(CONTI,CLENG+1,ISHF)                                   29  175
      CLENG=CLENG+1                                                   29  176
      GO TO 3                                                         29  177
C  **  STANDBY IS DESIRED                                            29  178
   15 STBYD (I) = 0                                                   29  179
      HOLD (I) = 0                                                    29  180
C  ** INCREMENT CONTROLLER NUMBER                                    29  181
    3 CONTINUE                                                        29  182
      I=I+1                                                           29  183
      IF(I.LE.SEMCT) GO TO 2                                          29  184
C    SCHEDULE RTNK                                                  29  185
      IF (CLENG .GT. 0)  MAST(KMAST) = 1                              29  186
      RETURN                                                          29  187
C  **                                                                 29  188
      END                                                             29  189
```

2.6.87 ROUTINE Y

```
ROUTINE: RTNY

    .   .   RTNY                                                        22    1
             TITLE    '.... ROUTINE Y  STARTUP ROUTINE ....'            22    2
             DEF      RTNY                                             22    3
             DEF      AUTBF                                            22    4
             DEF      BARR                 BUS DATA ARRAY              22    5
             DEF      BARRBYTE             BUS DATA ARRAY BYTE COUNT   22    6
             DEF      BPSY$IF                                          22    7
             DEF      FMFBPS                                           22    8
             DEF      CNTDC1                                           22    9
             DEF      CNTDC2                                           22   10
             DEF      CICEF                                            22   11
             DEF      CICSCT                                           22   12
             DEF      CICSF                                            22   13
             DEF      CICSYS                                           22   14
             DEF      CMALF                                            22   15
             DEF      CMMALF                                           22   16
             DEF      CONSEC                                           22   17
             DEF      CRTFL1                                           22   18
             DEF      CRTFL2                                           22   19
              DEF      CTLSEC                                          22   20
              DEF      CTLSYS                                          22   21
             DEF      CYCLC                                            22   22
             DEF      DBP                                              22   23
             DEF      DETDSP                                           22   24
             DEF      JJ                                               22   25
             DEF      LINKDSP                                          22   26
             DEF      DIS                                              22   27
             DEF      DMALF                                            22   28
             DEF      DM$DE                                            22   29
             DEF      DPATNUM                                          22   30
             DEF      DSPA                                             22   31
             DEF      ENTRY$FF                                         22   32
             DEF      FMSECF                                           22   33
             DEF      FMSYSF                                           22   34
             DEF      FMT$DC                                           22   35
             DEF      FSETCF                                           22   36
             DEF      GABBCABC                                         22   37
             DEF      GAWTEMP                                          22   38
             DEF      GBWTEMP                                          22   39
             DEF      GMINABC4                                         22   40
             DEF      HBUFLNG                                          22   41
             DEF      HRF                                              22   42
             DEF      HSBUF                                            22   43
              DEF      KCL                                             22   44
             DEF      KNEW                                             22   45
             DEF      LFBUF                                            22   46
             DEF      LFDPN                                            22   47
             DEF      MASK                                             22   48
             DEF      MCDF                                             22   49
             DEF      MI                                               22   50
             DEF      M$DE$                                            22   51
             DEF      NCWRD                                            22   52
             DEF      NCWRD2                                           22   53
             DEF      NMANPAT                                          22   54
             DEF      NPATBYT                                          22   55
             DEF      NRESPAT                                          22   56
             DEF      NUMCTL                                           22   57
             DEF      NUMSCT                                           22   58
              DEF      NSECTM1                                         22   59
             DEF      NUMVED                                           22   60
             DEF      PARC$D                                           22   61
             DEF      PRTFLG                                           22   62
             DEF      PTN                                              22   63
             DEF      RTC                                              22   64
             DEF      SAVRD                                            22   65
             DEF      SAVRB                                            22   66
             DEF      SEMMSK                                           22   67
             DEF      SMTFLG                                           22   68
             DEF      SPLCHG                                           22   69
             DEF      STBYD                                            22   70
             DEF      SUMABCT                                          22   71
             DEF      SLFDPN                                           22   72
             DEF      TT                                               22   73
             DEF      TSTART                                           22   74
             DEF      THRESH                                           22   75
             DEF      TIMMCH                                           22   76
             DEF      TRANSF                                           22   77
             DEF      WMSF                                             22   78
             DEF      WRK$FF                                           22   79
             DEF      WSBF                                             22   80
             DEF      WSF                                              22   81
             DEF      TBYTE15                                          22   82
              DEF      TBYTE                                           22   83
             DEF      TBUFF1S                                          22   84
             DEF      CC2P,RAW$CP,RAWSPF                               22   85
             DEF      WRK$FS,I9,IEA,ENTCYC,SPLIT,CGRPN                 22   86
             DEF      LINKL,LINKHT,IALPH,GILNK,LMN8,GC2LSI             22   87
             DEF      GC8NT,GCNTSI,GRPN8,NCIGRP                        22   88
             DEF      N2GCL,NCCR,NBL,NGRPS,NICIGP                      22   89
             DEF      ABCSTRT,ABCEND,BIAS,DELT,SMTABC                  22   90
             DEF      SABC,SUMACBC                                     22   91
             DEF      SURC8N,HLDSPL,HLD9FF,GATEM,GBTEM                 22   92
             DEF      9FF8P                                            22   93
             DEF      CICINM,LSG,CYCREF                                22   94
             DEF      INTF,NINTFC,NGRPI,INTN,INTN2,LINKN               22   95
              DEF      NAVMPAT                                         22   96
              DEF      AVMPAT                                          22   97
             REF      BPTIME,BPTIN,MINCTS                              22   98
              REF      DUMAST                                          22   99
```

```
                REF     FMC                                                     22  100
                REF     KMAST                                                   22  101
                REF     MAST                                                    22  102
                REF     STRTA                                                   22  103
                REF     READ,OPEN,CLOSE,ERROR                                   22  104
                PSYS    0                                                       22  105
                SYSTEM  UTCSREG                                                 22  106
TYPE            EQU     0                                                       22  107
TYPEM1          EQU     TYPE+1                                                  22  108
                TITLE   '**** SYSTEM PROCEDURE TO SET RESERVE LIMITS ****'      22  109
ALOC            CNAME                                                           22  110
                PROC                                                            22  111
                LOCAL   A$,B$                                                   22  112
B$              SET     AF(1)                                                   22  113
A$              SET     AF(1)+(4-(AF(1)/4))                                     22  114
                DO      A$>0                                                    22  115
LF              EQU     AF(1)+++A$                                              22  116
                ELSE                                                            22  117
LF              EQU     B$                                                      22  118
                FIN                                                             22  119
                PEND                                                            22  120
                TITLE   '***** UTCS SYSTEM ASSEMBLY PARAMETERS *****'           22  121
NRESPAT         EQU     4                                                       22  122
NMANPAT         EQU     8                                                       22  123
NST             EQU     4                       NUMBER OF SECTIONS              22  124
ND              EQU     516                     NUMBER OF DETECTORS             22  125
NL              EQU     275         NUMBER OF LINKS                             22  126
NCS             EQU     123                     NUMBER OF CONTROLLERS           22  127
                SPACE   3                                                       22  128
*                                                                               22  129
TBSIZE15        EQU     (6*NL)+5                                                22  130
NPATBYT         EQU     NRESPAT+NMANPAT                                         22  131
NPATBYT4        EQU     4*NPATBYT                                               22  132
NBUFLNG         EQU     NPATBYT4+256*NRESPAT                                    22  133
TBYTE15         EQU     4*TBSIZE15                                              22  134
NDR             ALOC    ND                                                      22  135
NLR             ALOC    NL                                                      22  136
NCR             ALOC    NCS                                                     22  137
NSR             ALOC    NST                                                     22  138
NCWRD           EQU     (NCR/32)+1                                              22  139
NCWRD2          EQU     2*NCWRD                                                 22  140
NCWRD64         EQU     64*NCARD                                                22  141
2NCWRD          EQU     2*NCWRD-2                                               22  142
MNUMBF          EQU     200                     MAX NUMBER OF ENTERIES IN FAILTAB 22 143
C$              EQU     NCWRD-1                                                 22  144
D$              EQU     NDR/32                                                  22  145
F$              EQU     (4*MNUMBF)-1                                            22  146
N$              EQU     NST-1                                                   22  147
S$              EQU     (NSR/2)+5                                               22  148
R$              EQU     7*(NSR/4)               DYNAMIC REGISTER NUMBER         22  149
S$              EQU     (NSR/4)-1               22  150
SC$             EQU     NSR/4                   22  151
                TITLE   '**** ROUTINE Y  STARTUP ROUTINE ****'                  22  152
                SPACE   2                                                       22  153
RTNY            RES     0                                                       22  154
                STW,0   SAVR0                                                   22  155
                LI,R1   DATL$                   GET NUMB OF WORDS TO CLEAR      22  156
                LI,3    $DATA$                  22  157
                LI,2    0                       SET R2 FOR CLEAR                22  158
                SW,1    3                       FIND NUMBER OF CELLS TO BE ZEROED 22 159
                STA,2   $DATA$-1,1              22  160
                BDR,1   $-1                     LOOP BACK                       22  161
                RD,0    0                       READ SENSE SWITCHES             22  162
                 BCS,1   NOREAD                 22  163
                LI,6    0                       ZERO INDEX                      22  164
                LI,1    LPBUF                   SET BUFFER ADDRESS IN R1        22  165
                LI,5    2                       SET R5 FOR INTERLEAVED DATA     22  166
                CAL1,1  OPEN                    OPEN SHUTDOWN FILE              22  167
                CAL1,1  RWRAD                   REWIND SHUTDOWN FILE            22  168
                CAL1,1  READRAD                 READ SHUTDOWN FILE              22  169
                LI,14   2                       SET LOOP COUNT                  22  170
                BAL,15  PUT                     PUT AWAY SHUTDOWN DATA          22  171
                BDR,14  $-1                     LOOP                            22  172
                LI,14   9                       SET LOOP COUNT                  22  173
                LI,5    1                       RESET R5 FOR NON-INTERLEAVED DATA 22 174
                BAL,15  PUT                     PUT AWAY THE REST OF DATA       22  175
                BDR,14  $-1                     LOOP                            22  176
                LCI     0$                      GET LAST FEW WORDS              22  177
                LM,2    *1                      GET LAST FEW WORDS              22  178
                STA,2   NOFAIL                  NUMB OF FAILURES                22  179
                STW,3   EODC                    END OF DAY COUNT                22  180
                STA,4   NHOLIDAY                NUMB OF HOLIDAYS                22  181
                STW,5   FTAB                    FAILURE TABLE INDICES           22  182
                STW,6   FTABWRD                 FAILURE TABLE INDICES           22  183
                CAL1,1  CLOSE                   CLOSE DCB                       22  184
NOREAD          RES     0                       22  185
                LI,R10  2                       SET CRTDC1, CRTDC2 = SYS STATUS 22  186
                LI,R11  1                       SET CRTFL1, CRTFL2 FALGS ON     22  187
                STA,R10 CRTDC1                  22  188
                STW,R10 CRTDC2                  22  189
                STA,R11 CRTFL1                  22  190
                STA,R11 CRTFL2                  22  191
                 LI,11   1                      22  192
                LW,2    KMAST                   SCHEDULE ROUTINE K              22  193
                 STA,11  DUMAST,2               22  194
CALLTIME        CAL1,8  $TIME$                  GET PRESENT TIME                22  195
                LW,R11  TMBF$                   22  196
                LI,R10  0                       CLEAR R10                       22  197
                SLC,R10 8                       GET HR IN EBCDIC                22  198
                LB,R15  R11                     GET UNITS DIGIT IN R15          22  199
                AI,R15  X'F0'                   MAKE BCD                        22  200
                AI,R10  X'F0'                   MAKE BCD                        22  201
                BE      DONE                    TENS DIGIT IS ZERO              22  202
                CI,R10  2                       TEST IF HR, TENS DIGIT IS 2     22  203
                BL      $+2                     NO, MAKE IT 10                  22  204
                AI,R15  10                      ADD 10 FOR TWENTY               22  205
                AI,R15  10                      ADD TEN FOR 10                  22  206
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DONE    MI,R15   4                  FORM NUMB. OF 15 MIN. INTERVALS I 22  207
        LI,R10   X'F'               YES, PICK UP TIME (MINUTES ONLY)  22  208
        AND,R10  TMBF8              YES, PICK UP TIME (MINUTES ONLY)  22  209
        LB,R11   TMBF8+1                                             22  210
        AI,R11   -X'F0'             CONVERT FROM EBCDIC               22  211
        XW,R10   R11                SWAP REGS                         22  212
        MI,R11   10                 CONVERT FROM BCD TO HEX           22  213
        AW,R11   R10                ADD IN UNITS PLACE                22  214
        STW,R11  SV11                                                 22  215
        LI,R11   60                                                   22  216
        LI,R10   0                                                    22  217
        DW,R10   8PTIME                                               22  218
        STW,R11  8PTIN                                                22  219
        LI,R10   0                                                    22  220
        LW,R11   SV11                                                 22  221
        DW,R10   8PTIME                                               22  222
        LCW,R11  R10                                                  22  223
        AW,R11   8PTIME                                               22  224
        MI,R11   60                                                   22  225
        STW,R11  MINCTS                                               22  226
        LW,R11   SV11                                                 22  227
        LI,R10   0                  CLEAR R10 FOR DIVIDE              22  228
        DW,R10   =15                DIVIDE BY 15                      22  229
        AW,R15   R11                ADD NUMB. 15 MIN. INTERVALS TO R1 22  230
        LCW,R11  R10                PUT -REMAINDER IN R11             22  231
        AI,R11   15                 ADD FIFTEEN                       22  232
        MI,R11   60                 FOR NUMBER OF SECONDS UNTIL NEXT  22  233
        STW,R11  FMC                SAVE IN 15 MIN. COUNTER           22  234
        STW,R15  FMTBDC             STR NUMB. OF 15 MIN INTERVALS IN  22  235
        LW,10    TMBF8+1            GET FIRST 2 CHAR OF MONTH         22  236
        LH,11    TMBF8+2            GET 1ST HW OF 3RD WORD            22  237
        SLS,11   16                                                   22  238
        SLD,10   16                                                   22  239
*   R10 HAS 'MON '                                                    22  240
        LI,2     =12                                                  22  241
        LI,1     3                  SET R1 FOR BYTE PICKUP LATER      22  242
        LI,11    X'FFF00'           SET BIT MASK IN R11               22  243
        CS,10    MONTHS+12,2        TEST FOR APPROPRIATE MONTH        22  244
        BE       *+3                FOUND MONTH                       22  245
        AI,1     4                  INCREMENT BYTE POINTER            22  246
        BIR,2    *-3                                                  22  247
        LB,15    MONTHS,1           GET MONTH NUMBER FOR ALGORITHM    22  248
        LI,2     1                  SET 2 FOR HALF-WORD INDEXING      22  249
        LH,10    TMBF8+3,2          GET 2ND HALF WORD                 22  250
        AND,10   =X'000000F0F'      MASK OUT DIGITS                   22  251
        SLD,10   =8                 SAVE UNITS DIGIT IN R11           22  252
        XW,10    11                 TENS DIGIT IN R11 (BYTE 3)        22  253
*                                   UNITS DIGIT IN R10 (BYTE 4)       22  254
        LB,10    10                 MOVE UNITS DIGIT TO BYTE 3 OF R10 22  255
        MI,11    10                 CONVERT TO HEX                    22  256
        AW,10    11                 FORM YEAR                         22  257
        AI,10    1900               FORM COMPLETE YEAR                22  258
        CI,15    12                 TEST IF MONTH JAN, OR FEB         22  259
        BLE      *+2                NO                                22  260
        AI,10    -1                 YES, SUBTRACT 1 FROM YEAR FOR ALG 22  261
*   MONTH CODE IN R15, YEAR IN R10                                    22  262
        LW,13    10                 MOVE YEAR TO R13                  22  263
        SLS,13   -2                 Y/4                               22  264
        AW,10    13                 Y+Y/4                             22  265
        DW,13    =25                Y/100                             22  266
        SW,10    13                 Y+Y/4-Y/100                       22  267
        SLS,13   -2                 Y/400                             22  268
        AW,10    13                 Y+Y/4-Y/100+Y/400                 22  269
        AI,10    2                  Y+(Y/4)-(Y/100)+(Y/400)+2         22  270
        AW,10    15                 ADD 2*MON                         22  271
        AW,10    15                 ADD 2*MON                         22  272
        AI,15    1                  FORM 3*(MON+1)                    22  273
        MI,15    3                  FORM 3*(MON+1)                    22  274
        DW,15    =5                 R15=(3*(MON+1))/5                 22  275
        AW,10    15                 ADD                               22  276
        LH,14    TMBF8+2,2          EXTRACT DAY OF MONTH              22  277
        AND,14   =X'000000F0F'      EXTRACT DIGITS                    22  278
        SLD,14   =8                 SAVE DIGIT                        22  279
        XW,14    15                                                   22  280
        LB,14    14                                                   22  281
        MI,15    10                                                   22  282
        AW,14    15                                                   22  283
        AW,10    14                                                   22  284
        LI,11    0                  CLEAR R11 FOR DIVIDE              22  285
        XW,10    11                 R10 TO R11 FOR DIVIDE             22  286
        AI,11    1                  INCREASE REMAINDERS BY 1 FOR DTCS 22  287
        DW,10    =7                 DIVIDE BY 7                       22  288
        CI,10    0                  TEST FOR FRIDAY                   22  289
        BG       *+2                                                  22  290
        LI,10    7                  YES, SET TO 7                     22  291
        STW,10   DAYBWK                                               22  292
        CI,10    2                  TEST IF SAT OR SUN                22  293
        BG       *+2                NO                                22  294
        STW,10   HOLIDF             YES, SET HOLIDAY FLAG             22  295
        B        STRTA              CALL EXEC INITIALIZATION LOOP     22  296
        SPACE    2                                                    22  297
*****   SUBROUTINE   PUT                                             22  298
*       R1 MUST HAVE CURRENT BUFFER POINTER                          22  299
*       R6 HAS TABLE INDEX (MOVTAB,NUMMOV)                           22  300
*       R5 HAS INTERLEAVED INDICATOR (1=NO,2=YES)                    22  301
        SPACE    3                                                   22  302
PUT     LH,7     NUMMOV,6           GET # OF WRDS TO MOVE - 1         22  303
        LH,3     MOVTAB,6           GET ADDRESS TO STR INTO           22  304
        AND,3    =X'0000FFFF'       MASK OUT UPPER HALF-WRD           22  305
        LW,4     7                  SAVE NUMBER IN R4                 22  306
        CI,5     1                  TEST IF INTERLEAVED OR NOT        22  307
        BNE      INTERL             INTERLEAVED DATA                  22  308
PUT1    LW,10    *1,7               GET DATA                          22  309
        STW,10   *3,4                                                 22  310
        SW,4     5                  ADJUST INDEX                      22  311
        AI,7     -1                                                   22  312
        BGEZ     PUT1                                                 22  313
```

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          AM,1      NUMBV,6              ADVANCE BUFFER POINTER              22  314
          AI,1      1                    CORRECT                             22  315
          AI,5      1                    ADVANCE TO NEXT TABLE ENTRY         22  316
          B         *15                  EXIT                                22  317
INTERL    A,4       4                    DOUBLE R4 FOR INDEXING INTERLEAVE   22  318
          B         PUT1                 NAD CONTINUE                        22  319
SV11      DATA      0                                                        22  320
MONTHS    DATA      X'D1C1D503',X'C6C5C20E',X'D4C1D903'                      22  321
          DATA      X'C1D7C904',X'D4C1E805',X'D1E4D506'                      22  322
          DATA      X'D1E40307',X'C1E4C708',X'E2C50709'                      22  323
          DATA      X'D6C3E30A',X'D506F50B',X'C4C5C30C'                      22  324
$TIME$    GEN,8,24  X'10',TMBF$                                              22  325
TMBF$     DATA      0,0,0,0                                                  22  326
RAWAD     GEN,8,24  1,FRAD                                                   22  327
READRAD   GEN,8,24  16,FRAD                                                  22  328
          GEN,4,4,4,16,4      15,0,0,1,0                                     22  329
          DATA      ERR0R                                                    22  330
          DATA      ERR8R                                                    22  331
          DATA      LPBUF,4*1800                                             22  332
          SPACE     4                                                        22  333
MBVTAB    RES       0                                                        22  334
          DATA,2    CICSF,CMALF,CMMALF,DMALF                                 22  335
          DATA,2    DIS,SECLFC,SECDFC,DMBDE                                  22  336
          DATA,2    DATE,FAILTAB,HMLIOTBL                                    22  337
          BBUND     4                                                        22  338
NUMBV     RES       0                                                        22  339
          DATA,2    C$,C$,D$,D$,D$,^$,N$,S$,2,95,F$                          22  340
**   BUS DATA INPUT ARRAY                                                    22  341
          BBUND     8                                                        22  342
BARR      RES       0                                                        22  343
*    STBP=BUS INDICATOR ARRAY                                                22  344
SBI       RES       0                                                        22  345
          GEN,20,4,4,4,32     X'80C',X'0',X'0',X'F',X'FFFFFFFF'              22  346
          GEN,20,4,4,4,32     X'80C',X'1',X'0',X'F',X'FFFFFFFF'              22  347
          GEN,20,4,4,4,32     X'80C',X'0',X'1',X'F',X'FFFFFFFF'              22  348
          GEN,20,4,4,4,32     X'80C',X'1',X'1',X'F',X'FFFFFFFF'              22  349
          GEN,20,4,4,4,32     X'80C',X'0',X'2',X'F',X'FFFFFFFF'              22  350
          GEN,20,4,4,4,32     X'80C',X'0',X'0',X'F',X'FFFFFFFF'              22  351
          GEN,20,4,4,4,32     X'80C',X'1',X'0',X'F',X'FFFFFFFF'              22  352
          GEN,20,4,4,4,32     X'80C',X'0',X'1',X'F',X'FFFFFFFF'              22  353
*    THRU=BUS INDICATOR ARRAY                                                22  354
TBI       RES       0                                                        22  355
          GEN,20,4,4,4,32     X'80C',X'1',X'2',X'F',X'FFFFFFFF'              22  356
          GEN,20,4,4,4,32     X'80C',X'0',X'3',X'F',X'FFFFFFFF'              22  357
          GEN,20,4,4,4,32     X'80C',X'1',X'3',X'F',X'FFFFFFFF'              22  358
          GEN,20,4,4,4,32     X'80C',X'0',X'4',X'F',X'FFFFFFFF'              22  359
          GEN,20,4,4,4,32     X'80C',X'1',X'4',X'F',X'FFFFFFFF'              22  360
          GEN,20,4,4,4,32     X'80C',X'1',X'2',X'F',X'FFFFFFFF'              22  361
          GEN,20,4,4,4,32     X'80C',X'0',X'3',X'F',X'FFFFFFFF'              22  362
          GEN,20,4,4,4,32     X'80C',X'1',X'3',X'F',X'FFFFFFFF'              22  363
*    BUS ERROR INDICATOR ARRAY                                               22  364
BEI       RES       0                                                        22  365
          GEN,20,4,4,4,32     X'80C',X'0',X'5',X'F',0                        22  366
          GEN,20,4,4,4,32     X'80C',X'1',X'5',X'F',0                        22  367
          GEN,20,4,4,4,32     X'80C',X'0',X'6',X'F',0                        22  368
          GEN,20,4,4,4,32     X'80C',X'1',X'6',X'F',0                        22  369
          GEN,20,4,4,4,32     X'80C',X'0',X'7',X'F',0                        22  370
          GEN,20,4,4,4,32     X'80C',X'0',X'5',X'F',0                        22  371
          GEN,20,4,4,4,32     X'80C',X'1',X'5',X'F',0                        22  372
          GEN,20,4,4,4,32     X'80C',X'0',X'6',X'F',0                        22  373
BARRBYTE  EQU       4*(8-BARR)                                               22  374
BPSYSIF   DATA      1                                                        22  375
FMFBPS    DATA      0                                                        22  376
          SPACE     2                                                        22  377
MASK      RES       0                                                        22  378
          DATA      X'80000000'                                              22  379
          DATA      X'40000000'                                              22  380
          DATA      X'20000000'                                              22  381
          DATA      X'10000000'                                              22  382
          DATA      X'08000000'                                              22  383
          DATA      X'04000000'                                              22  384
          DATA      X'02000000'                                              22  385
          DATA      X'01000000'                                              22  386
          DATA      X'00800000'                                              22  387
          DATA      X'00400000'                                              22  388
          DATA      X'00200000'                                              22  389
          DATA      X'00100000'                                              22  390
          DATA      X'00080000'                                              22  391
          DATA      X'00040000'                                              22  392
          DATA      X'00020000'                                              22  393
          DATA      X'00010000'                                              22  394
          DATA      X'00008000'                                              22  395
          DATA      X'00004000'                                              22  396
          DATA      X'00002000'                                              22  397
          DATA      X'00001000'                                              22  398
          DATA      X'00000800'                                              22  399
          DATA      X'00000400'                                              22  400
          DATA      X'00000200'                                              22  401
          DATA      X'00000100'                                              22  402
          DATA      X'00000080'                                              22  403
          DATA      X'00000040'                                              22  404
          DATA      X'00000020'                                              22  405
          DATA      X'00000010'                                              22  406
          DATA      X'00000008'                                              22  407
          DATA      X'00000004'                                              22  408
          DATA      X'00000002'                                              22  409
          DATA      X'00000001'                                              22  410
          SPACE     2                                                        22  411
MBLDS$    DSECT     0                                                        22  412
SUNCBX    RES       0                                                        22  413
          DATA,1    18,19,0,0                 1                              22  414
          DATA,1    123,3,0,0                 2                              22  415
          DATA,1    2,12,0,0                  3                              22  416
          DATA,1    5,0,0,0                   4                              22  417
          DATA,1    4,120,0,0                 5                              22  418
          DATA,1    10,121,0,0                6                              22  419
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DATA,1  120,9,0,0          7          22  420
DATA    0                  8          22  421
DATA,1  7,10,11,0          9          22  422
DATA,1  11,6,0,0           10         22  423
DATA,1  9,10,0,0           11         22  424
DATA,1  3,106,6,0          12         22  425
DATA,1  15,0,0,0           13         22  426
DATA,1  16,17,0,0          14         22  427
DATA,1  13,16,0,0          15         22  428
DATA,1  15,14,0,0          16         22  429
DATA,1  103,14,18,0        17         22  430
DATA,1  17,1,0,0           18         22  431
DATA,1  1,20,0,0           19         22  432
DATA,1  19,21,0,0          20         22  433
DATA,1  20,23,0,0          21         22  434
DATA,1  106,0,0,0          22         22  435
DATA,1  21,98,24,25        23         22  436
DATA,1  23,98,27,0         24         22  437
DATA,1  23,72,0,0          25         22  438
DATA,1  24,71,0,0          26         22  439
DATA,1  71,24,0,0          27         22  440
DATA    0                  28         22  441
DATA    0                  29         22  442
DATA    0                  30         22  443
DATA,1  32,0,0,0           31         22  444
DATA,1  31,50,0,0          32         22  445
DATA,1  50,39,0,0          33         22  446
DATA    0                  34         22  447
DATA    0                  35         22  448
DATA    0                  36         22  449
DATA    0                  37         22  450
DATA    0                  38         22  451
DATA,1  33,40,0,0          39         22  452
DATA,1  39,41,0,0          40         22  453
DATA,1  40,42,0,0          41         22  454
DATA,1  53,41,0,0          42         22  455
DATA    0                  43         22  456
DATA    0                  44         22  457
DATA    0                  45         22  458
DATA    0                  46         22  459
DATA    0                  47         22  460
DATA    0                  48         22  461
DATA    0                  49         22  462
DATA,1  32,33,6,0          50         22  463
DATA,1  58,52,0,0          51         22  464
DATA,1  51,53,0,0          52         22  465
DATA,1  52,42,0,0          53         22  466
DATA,1  66,67,55,0         54         22  467
DATA,1  54,68,66,58        55         22  468
DATA,1  55,93,0,0          56         22  469
DATA    0                  57         22  470
DATA,1  55,51,0,0          58         22  471
DATA,1  73,84,60,63        59         22  472
DATA,1  59,85,61,64        60         22  473
DATA,1  60,86,87,65        61         22  474
DATA,1  70,73,63,69        62         22  475
DATA,1  62,59,64,66        63         22  476
DATA,1  63,60,65,67        64         22  477
DATA,1  64,61,90,68        65         22  478
DATA,1  69,63,67,54        66         22  479
DATA,1  66,64,68,54        67         22  480
DATA,1  67,65,93,55        68         22  481
DATA,1  70,62,66,0         69         22  482
DATA,1  71,72,69,0         70         22  483
DATA,1  26,75,70,27        71         22  484
DATA,1  25,76,0,0          72         22  485
DATA,1  72,77,59,62        73         22  486
DATA,1  98,75,27,0         74         22  487
DATA,1  27,74,76,0         75         22  488
DATA,1  75,72,77,0         76         22  489
DATA,1  76,73,84,0         77         22  490
DATA    0                  78         22  491
DATA    0                  79         22  492
DATA    0                  80         22  493
DATA,1  86,87,82,0         81         22  494
DATA,1  81,88,83,0         82         22  495
DATA,1  82,89,96,0         83         22  496
DATA,1  77,59,85,0         84         22  497
DATA,1  84,60,86,0         85         22  498
DATA,1  85,61,81,0         86         22  499
DATA,1  61,81,88,90        87         22  500
DATA,1  87,82,89,91        88         22  501
DATA,1  88,83,100,0        89         22  502
DATA,1  65,87,91,93        90         22  503
DATA,1  90,88,94,0         91         22  504
DATA    0                  92         22  505
DATA,1  68,90,94,56        93         22  506
DATA,1  93,91,95,0         94         22  507
DATA,1  94,0,0,0           95         22  508
DATA,1  83,100,97,0        96         22  509
DATA,1  96,99,0,0          97         22  510
DATA,1  23,24,74,0         98         22  511
DATA,1  100,97,0,0         99         22  512
DATA,1  98,96,99,0         100        22  513
DATA    0                  101        22  514
DATA    0                  102        22  515
DATA,1  104,17,0,0         103        22  516
DATA,1  105,103,0,0        104        22  517
DATA,1  106,104,0,0        105        22  518
DATA,1  12,22,105,0        106        22  519
DATA    0                  107        22  520
DATA    0                  108        22  521
DATA    0                  109        22  522
DATA    0                  110        22  523
DATA    0                  111        22  524
DATA    0                  112        22  525
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                DATA    0                               113                     22  526
                DATA    0                               114                     22  527
                DATA    0                               115                     22  528
                DATA    0                               116                     22  529
                DATA    0                               117                     22  530
                DATA    0                               118                     22  531
                DATA    0                               119                     22  532
                DATA,1  5,7,0,0                         120                     22  533
                DATA,1  6,122,0,0                       121                     22  534
                DATA,1  121,123,0,0                     122                     22  535
                DATA,1  122,2,0,0                       123                     22  536
                DATA    0                               124                     22  537
HLDSPL          DATA    0,0,0,0                                                 22  538
HLDBFF          DATA    0,0,0,0                                                 22  539
GATEM           DATA    0                                                       22  540
GBTEM           DATA    0                                                       22  541
BFFBP           RES     124                                                     22  542
                SPACE 2                                                         22  543
BLK5            DSECT   0                                                       22  544
IPND            DATA    0                                                       22  545
ITRDLY          DATA    0                                                       22  546
*                                                                               22  547
*     OCCUPANCY WEIGHTING FACTOR                                                22  548
*                                                                               22  549
IWT             DATA    0                                                       22  550
*                                                                               22  551
*       VOLUME AND SPEED LIMITS                                                 22  552
*                                                                               22  553
JLIM            DATA    22,66,100,800                                           22  554
                SPACE   2                                                       22  555
BLK7            DSECT   0                                                       22  556
ALL             EQU     X'FFFFFFFF'                                             22  557
ABG             DATA    ALL,0,ALL,0,ALL,0,ALL,0                                 22  558
                DATA    ALL,0,ALL,0,ALL,0,ALL,0                                 22  559
INTERVH         RES     0                                                       22  560
                DATA,1  4,8,6,6,6,2,6,0,16,9,6,4                                22  561
                DATA,1  6,6,8,9,9,4,4,16,8,4,9,16                               22  562
                DATA,1  2,16,16,8,9,6,16,8,6,6,4,8                              22  563
                DATA,1  16,8,6,6,6,8,4,4,6,4,8,4                                22  564
                DATA,1  4,4,4,4,8,8,9,6,4,2,8,9                                 22  565
                DATA,1  9,6,8,8,9,16,8,9,8,9,16,6                               22  566
                DATA,1  6,8,9,9,6,0,0,0,6,6,6,6                                 22  567
                DATA,1  8,8,6,9,6,9,9,6,9,6,6,6                                 22  568
                DATA,1  8,6,9,4,0,0,9,8,6,16,0,0                                22  569
                DATA,1  8,8,8,8,4,6,6,6,4,6,4,6                                 22  570
                DATA,1  16,2,4,0            124 CONTROLLERS                     22  571
                SPACE   2                                                       22  572
INTERV2         RES     0                                                       22  573
                DATA,1  3,4,3,3,4,D,4,0,8,7,4,3                                 22  574
                DATA,1  4,5,6,5,5,3,3,6,4,3,4,8                                 22  575
                DATA,1  0,11,6,3,6,4,7,4,3,4,3,5                                22  576
                DATA,1  7,4,5,4,4,4,3,3,4,3,5,3                                 22  577
                DATA,1  3,3,3,3,7,6,4,4,3,0,5,6                                 22  578
                DATA,1  5,4,5,5,8,8,5,6,4,4,5,4                                 22  579
                DATA,1  4,5,4,5,4,D,4,0,4,4,4,4                                 22  580
                DATA,1  5,5,4,4,3,5,7,4,4,4,4,4                                 22  581
                DATA,1  5,5,4,3,3,0,5,6,4,4,9,0,0                               22  582
                DATA,1  4,4,5,5,3,4,4,4,3,4,3,4                                 22  583
                DATA,1  8,0,3,0             124 CONTROLLERS                     22  584
                SPACE   2                                                       22  585
KCTC            DATA    0,0,0,0,0,D,0,0,0,0                                     22  586
                DATA    0,0,0,0,D,0,0                                           22  587
KBPH            RES     0                                                       22  588
                DATA,1  0,0,0,0,0,0,0,0,2,1,3,0                                 22  589
                DATA,1  0,2,2,2,1,0,0,0,0,0,1,2                                 22  590
                DATA,1  0,0,0,0,2,0,2,0,1,0,0,0                                 22  591
                DATA,1  1,1,2,0,0,2,0,0,0,0,0,0                                 22  592
                DATA,1  0,0,0,0,2,2,2,0,0,0,0,0                                 22  593
                DATA,1  0,0,0,0,1,2,0,0,0,0,0,0                                 22  594
                DATA,1  0,0,1,0,D,0,0,0,0,0,0,0                                 22  595
                DATA,1  0,0,0,3,0,0,1,0,1,0,D,0                                 22  596
                DATA,1  0,0,3,0,0,0,0,0,D,1,0,D                                 22  597
                DATA,1  0,2,0,0,0,0,0,0,0,0,0,0                                 22  598
                DATA,1  2,0,0,0             124 CONTROLLERS                     22  599
                SPACE   2                                                       22  600
STARTLPF        DATA    0                                                       22  601
*       *** NGL     NUMBER OF CRITICAL LINKS ***                                22  602
NGL             DATA,1  0,0,0,0,0,0,0,0,4,4,4,4,0,1,4,1,4,1,0,0,0,0,0,0,0,0     22  603
                DATA,1  0,0,0,0,4,0,0,0,0,0,0,0,0,0,0,1,0,1,0,0,1,0,0,0,1,0,0,0 22  604
                DATA,1  0,0,1,0,1,0,1,0,2,0,0,0,1,0,0,3,0,0,2,2,2,0,3,0,0,2,2,0 22  605
                DATA,1  0,0,0,3,0,2,2,1,2,4,2,0,1,0,1,1,0,0,1,0,1,0,0,0,0,0,0,0 22  606
                DATA,1  0,0,0,0,0,0,0,0,0,0,0,1,0,0,0,0,1,4,0,3                 22  607
                BOUND   4                                                       22  608
                SPACE   2                                                       22  609
BLK4            DSECT   0                                                       22  610
M1              DATA    X'2000'                                                 22  611
*       *** NDALNK          NUMBER   OF  DETECT ASSIGNED TO LINK ***            22  612
NDALNK          RES     0                                                       22  613
                DATA,1  2,3,3,1,2,1,3,2,1,2,3,2,1,1,1,1,1,1,3,2,1,1,3,3,2       22  614
                DATA,1  3,2,1,2,2,3,2,3,2,2,2,2,2,2,2,2,2,2,2,2,2,2,1,1,1       22  615
                DATA,1  1,1,1,1,1,1,1,1,1,3,3,1,1,3,3,3,3,3,3,1,1,3,2,3,3,3,1   22  616
                DATA,1  3,3,1,1,3,3,1,3,1,1,2,3,2,1,1,2,1,3,1,3,3,2,1,3,1,3,3   22  617
                DATA,1  2,1,1,3,3,3,2,3,1,3,1,1,1,1,1,1,1,1,1,3,3,3,3,1,3,1     22  618
                DATA,1  1,1,1,3,3,1,3,3,1,1,1,1,1,1,1,3,3,3,3,3,3,1,3,3,3,1,1   22  619
                DATA,1  3,3,3,3,3,1,3,3,1,1,1,3,1,2,2,1,3,3,2,1,3,1,1,1,1,3     22  620
                DATA,1  3,2,3,3,3,1,3,3,3,3,1,3,2,1,3,3,3,1,3,1,2,1,1,1,3,2     22  621
                DATA,1  3,3,1,3,1,3,3,3,3,3,1,1,1,1,1,3,1,3,1,1,1,1,1,1,1,1     22  622
                DATA,1  1,3,3,1,2,3,2,1,1,1,1,3,3,2,2,2,1,3,3,1,1,1,1,1,1,1     22  623
                DATA,1  1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1                         22  624
                BOUND   4                                                       22  625
                SPACE   2                                                       22  626
TT3             DATA    X'1000'                                                 22  627
TT7             DATA    X'5A00'                                                 22  628
                SPACE   2                                                       22  629
BLK9            DSECT   0                                                       22  630
DSMA            DATA    0,0,0,0,0                                               22  631
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                DATA    0                                                       22  632
                DATA,1  1,1,1,1,1,1,1,1,1,1         PAT 2     600-830       22  633
                DATA,1  1,1,1,1,1                                               22  634
                DATA,1  0,0,0,0,0,0,0                                           22  635
                DATA,1  0,0,0,0,0,0                                             22  636
                DATA,1  0,0,0,0,0,0,0,0,0,0                                     22  637
                DATA,1  2,2,2,2,2,2,2,2             PAT 3     1530-1730     22  638
                DATA,1  3,3,3,3,3                                               22  639
                DATA,1  0                           PAT 1     1845-600      22  640
                DATA    0,0,0,0,0                                               22  641
                SPACE   2                                                       22  642
FPMF            DATA    2                                                       22  643
                SPACE   2                                                       22  644
KBCC            DATA    8000                2000 AT B2                          22  645
KM              DATA    X'FF'!                                                  22  646
CFOPN           DATA,2  612,932,2704,1868                                       22  647
VC              RES     0                                                       22  648
                 DATA,1  10,18,43,40                                            22  649
TRULY           DATA    0                                                       22  650
                SPACE   2                                                       22  651
SECTLKN         EQU     *                                                       22  652
                DATA,2  0,1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17             22  653
                DATA,2  49,50,51,53,54,55,56                                    22  654
                DATA,2  93,118,144,147                                          22  655
                DATA,2  18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33         22  656
                DATA,2  34,35,36,37,38,39,40,41,42,43,44,45,46,47,48            22  657
                DATA,2  52                                                      22  658
                DATA,2  57,58,59,60,61,62,63,64,65,66,67,68,69,70,71,72,73      22  659
                DATA,2  74,75,76,77,78,79,80,81,82,83,84,85,86,87,88,89         22  660
                DATA,2  90,91,92,94,95,96,97,98,99,100,101,102,103,104          22  661
                DATA,2  105,106,107,108,109,110,111,112,113,114,115,116         22  662
                DATA,2  117,119,120,121,122,123,124,125,126,127,128             22  663
                DATA,2  129,130,131,132,133,134,135,136,137,138,139,140         22  664
                DATA,2  141,142,143,145,146,148,149,150,151,152                 22  665
                DATA,2  153,154,155,156,157,158,159,160,161,162,163,164         22  666
                DATA,2  165,166,167,168,169,170,171,172,173,174,175,176         22  667
                DATA,2  177,178,179,180,181,182,183,184,185,186,187,188         22  668
                DATA,2  189,190,191,192,193,194,195,196                         22  669
                DATA,2  197,198,199,200,201,202,203,204,205,206,207             22  670
                DATA,2  208,209,210,211,212,213,214,215,216,217,218,219         22  671
                DATA,2  220,221,222,223,224,225,226,227,228,229,230,231         22  672
                DATA,2  232,233,234,235,236,237,238,239,240,241,242,243         22  673
                DATA,2  244,245,246,247,248,249,250,251,252,253,254,255         22  674
                DATA,2  256,257,258,259,260,261,262,263,264,265,266,267         22  675
                DATA,2  268,269,270,271,272,273,274,275                         22  676
                BOUND   4                                                       22  677
                SPACE   2                                                       22  678
SLFOPN          RES     0                                                       22  679
INSS            DB      44                                                      22  680
                DATA,1  INSS-1                                                  22  681
                FIN                                                             22  682
NAVMPAT          RES     0                                                      22  683
*                DATA    NMANPAT                                                22  684
AVMPAT           RES     0                                                      22  685
                 DATA,1  0,1,2,3,4,5,6,7                                        22  686
                 RES     3                                                      22  687
                SPACE   2                                                       22  688
BLK10           DSECT   0                                                       22  689
CICSCT          RES     0                                                       22  690
                DATA    X'00028000'                                             22  691
                DATA    0,0,0                                                   22  692
                DATA    X'00F00000'                                             22  693
                DATA    0,0                                                     22  694
                DATA    X'0000001A0'                                            22  695
                DATA    0                                                       22  696
                DATA    X'00000628'                                             22  697
                DATA    X'5D9858AC'                                             22  698
                DATA    X'80000000'                                             22  699
                DATA    X'00000002'                                             22  700
                DATA    X'81C8C880'                                             22  701
                DATA    X'00000000'                                             22  702
                DATA    X'00002000'                                             22  703
                SPACE   2                                                       22  704
CICSYS          RES     0                                                       22  705
                DATA    X'00F28002',X'00508000',X'81C8CEA8',X'014886A0'         22  706
                DATA    X'5D9858AC',X'5598592C',X'80002140',X'A0002140'         22  707
CTLSEC           EQU     *                                                      22  708
                DATA    X'800FFA00'          . SECTION 1                        22  709
                 DATA    0,0,0                                                  22  710
                DATA    X'7EF004C0'          . SECTION 2                        22  711
                 DATA    0,0                                                    22  712
                 DATA    X'03C001ED'                                            22  713
                DATA    X'000001E0'          . SECTION 3                        22  714
                 DATA    X'00000738'                                            22  715
                 DATA    X'FFF8FFED'                                            22  716
                DATA    X'F000J000'                                            22  717
                 DATA    X'0000001F'              . SECTION 4                   22  718
                 DATA    X'FFFFF8C0'                                            22  719
                DATA    X'00000012'                                            22  720
                DATA    X'C00FFE00'                                            22  721
CTLSYS           EQU     *                                                      22  722
                 DATA    X'FEFFFFFF'              . SYSTEM-WIDE CONTROLLER      22  723
                 DATA    X'FFFFFFFF'              .  MASK                       22  724
                DATA    X'FFF8FFFF'                                            22  725
                DATA    X'F3CEFFE0'                                            22  726
CONSEC          RES     0                                                       22  727
                DATA,1  1,2,2,2,2,2,2,0,2,2,2,2                                 22  728
                DATA,1  1,1,1,1,1,1,1,1,1,2,1,3                                 22  729
                DATA,1  3,3,3,4,4,4,4,4,4,4,4,4                                 22  730
                DATA,1  4,4,4,4,4,4,4,4,4,4,4,4                                 22  731
                DATA,1  4,4,4,4,4,4,3,3,3,4,4,3,3                               22  732
                DATA,1  3,3,3,3,3,3,3,3,3,3,3,3                                 22  733
                DATA,1  3,3,3,3,3,3,D,0,0,3,3,3,3                               22  734
                DATA,1  3,3,3,3,3,3,3,4,3,3,4,3                                 22  735
                DATA,1  3,0,3,3,0,0,2,2,2,2,0,0                                 22  736
                DATA,1  4,4,4,4,4,4,4,4,4,4,4,2                                 22  737
                DATA,1  2,2,2,0                 124 CONTROLLERS                 22  738
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                SPACE   2                                                       22  739
CONTZN          DATA,1  0,1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18         22  740
                DATA,1    19,20,21,22,23,24,25,26,27,28,29,30,31,32,33        22  741
                DATA,1    34,35,36,37,38,39,40,41,42,43,44,45,46,47,48        22  742
                DATA,1    49,50,51,52,53,54,55,56,57,58,59,60,61,62,63        22  743
                DATA,1    64,65,66,67,68,69,70,71,72                          22  744
                BOUND   4                                                     22  745
LNKCON          RES     3                                                     22  746
                DATA,1  14,14,14,14,14,16,16,16,16,16,16,17,17,17,18,19,19    22  747
                DATA,1  19,8,8,8,8,8,8,8,9,9,9,9,10,10,10,10,11,11            22  748
                DATA,1  11,11,119,119,119,119,120,120,120,120,122,122         22  749
                DATA,1  20,20,20,96,22,22,22,22,23,23,23,23,53,53,53,53       22  750
                DATA,1  54,54,54,54,55,55,58,58,58,59,59,59,60,60,60,62       22  751
                DATA,1  63,64,64,64,65,65,65,65,66,66,67,15,67,67,67          22  752
                DATA,1  68,68,68,68,69,49,63,69,71,70,71,71,71,72,72,72,72    22  753
                DATA,1  73,73,73,74,13,74,74,74,85,75,75,62,76,76,76          22  754
                DATA,1  85,80,80,80,63,81,81,81,81,60,82,82,82,13,83          22  755
                DATA,1  83,15,84,84,84,64,85,86,86,86,86,87,87,87,87,88,88    22  756
                DATA,1  88,88,89,89,90,90,90,92,92,92,92,93,93,93,90,95,95    22  757
                DATA,1  95,67,96,96,96,98,98,98,98,98,99,99,99,99,30,30       22  758
                DATA,1  30,30,30,31,32,32,32,32,36,38,38,39,39,39,39,40,40,40 22  759
                DATA,1  40,41,41,41,41,42,42,42,42,43,44,44,44,45,45,46,46    22  760
                DATA,1  46,46,47,47,47,48,48,49,49,49,49,50,50,51,51,52,52    22  761
                DATA,1  52,56,56,57,114,114,118,118,123,123,123,123,123,123,123 22 762
                DATA,1  123,123,123,123,123,123,123,123,123,123               22  763
                DATA,1  123,123,123,123,123                                   22  764
                BOUND   4                                                     22  765
TIMMCH          TEXT    '0000000000000030'                                    22  766
Z51             DATA,1  0,0,0,0,0,0,0,0,0,0,2,2,4,4,4,4,7,7,7,7,7             22  767
                DATA,1  7,7,7,7,7,7,7,7,7,7,7,7,7,7,7,9,9,11                  22  768
                DATA,1  11,11,13,13,13,13,14,14,14,14,14,17,19,19,21          22  769
                DATA,1  21,24,27,27,27,27,28,29,31,31,33,33,36,36,39          22  770
                DATA,1  42,42,42,43,44,44,44,44,46,46,46,47,48,48,48          22  771
                DATA,1  52,52,52,54,54,57,58,58,58,60,60,64,64,64,44          22  772
                DATA,1  64,64,64,64,64,64,64,64,64,64,64,64,66,66,46          22  773
                DATA,1  66,66,68,70,70,72,73                                  22  774
                BOUND   4                                                     22  775
                SPACE   2                                                     22  776
BLK11           DSECT   0                                                     22  777
W5815           DATA    0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0  22  778
                DATA    0,0,0,0,0,0                                           22  779
IG15            DATA    0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0  22  780
                DATA    0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0  22  781
                DATA    0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0  22  782
KW              DATA    2000                    BCC WEIGHTING FACTOR          22  783
LINKDI          RES     0                                                     22  784
                DATA,1  3,0,0,2,2,3,3,0,2,2,2,1,3,2,3,2,5,7,6,5,5,2,6,6,1,3   22  785
                DATA,1  0,2,1,1,3,5,2,6,3,0,2,1,3,0,2,1,3,0,2,1,3,0,2,1,5,2,6 22  786
                DATA,1  2,5,0,6,1,5,3,0,1,5,0,2,6,3,0,6,1,2,1,3,2,1,3,0,2,3   22  787
                DATA,1  0,2,1,2,0,0,1,1,3,3,5,6,1,3,0,3,1,0,0,1,5,0,2,4,3,5,6 22  788
                DATA,1  1,0,2,3,2,1,3,0,0,2,3,2,1,7,2,0,4,2,1,2,1,2,0,0,2,0   22  789
                DATA,1  0,2,1,2,0,0,2,1,1,1,0,0,2,1,3,2,1,3,0,0,3,2,2,3,0,2   22  790
                DATA,1  1,3,0,2,1,3,0,2,1,0,1,0,1,1,3,2,0,1,3,2,1,2,0,2,1,3   22  791
                DATA,1  0,2,1,3,0,0,2,1,3,0,2,1,3,3,0,2,1,3,3,2,2,1,3,2,3,2   22  792
                DATA,1  1,1,3,3,2,2,3,0,2,1,3,3,0,0,1,3,1,1,3,0,0,0,3,2,2,2   22  793
                DATA,1  1,0,2,3,3,0,2,0,2,0,1,0,2,1,3,0,1,0,2,3,1             22  794
                BOUND   4                                                     22  795
*                 *** NOBL              NUMBER  OF  DETECT    BY   LINK ***   22  796
NOBL            RES     0                                                     22  797
                DATA,1  1,1,1,1,1,1,1,1,1,1,1,1,1,0,1,1,1,1,1,1,1,0,1,1,1,1   22  798
                DATA,1  1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1   22  799
                DATA,1  1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,0,1,1,1,1,1,1,1   22  800
                DATA,1  1,1,1,1,1,1,0,1,1,1,1,1,1,1,1,1,1,1,1,0,1,1,1,1,0,1   22  801
                DATA,1  1,1,1,1,1,1,1,1,1,1,1,1,0,1,1,1,0,1,1,1,1,1,1,1,1,1   22  802
                DATA,1  1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1   22  803
                DATA,1  1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1   22  804
                DATA,1  1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1   22  805
                DATA,1  1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1   22  806
                DATA,1  1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1   22  807
                DATA,1  1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1               22  808
                DATA,1  0                                                     22  809
                DATA    0,0,0,0,0                                             22  810
                BOUND   4                                                     22  811
                SPACE   2                                                     22  812
*                 *** NUMBER AND LIST OF NON-EXISTANT CONTROLLERS             22  813
NNCONS          DATA    13                                                    22  814
NOCONT          DATA,1  0,8,78,79,80,92,95,98,101,102,107,108                 22  815
                DATA,1  112                                                   22  816
                BOUND   4                                                     22  817
TOSU            DATA    0                                                     22  818
                SPACE   2                                                     22  819
BLK12           DSECT   0                                                     22  820
*                 *** D                 LENGTH  OF  BLOCK  FOR  EACH  LINK  (FT) **  22  821
D               DATA,2  250,342,342,300,210,385,325,210,425,377,372,425,385   22  822
                DATA,2  240,240,450,55,240,450,365,210,385,450,411,365,210    22  823
                DATA,2  337,210,270,210,210,326,210,335,210,210,210,210,210   22  824
                DATA,2  210,210,210,210,210,210,210,210,210,210,370,100,450   22  825
                DATA,2  440,410,240,350,400,175,50,250,310,371,348,200,342    22  826
                DATA,2  263,384,365,320,330,350,344,210,300,355,323,373,135   22  827
                DATA,2  302,365,300,310,317,310,295,400,275,210,360,210,450   22  828
                DATA,2  115,300,210,364,400,306,347,210,405,365,405,365,377   22  829
                DATA,2  210,385,145,354,375,306,210,290,310,383,200,250,450   22  830
                DATA,2  450,450,300,235,180,340,385,365,295,312,305,370,420   22  831
                DATA,2  310,405,450,360,283,325,350,370,450,305,305,305,435   22  832
                DATA,2  450,340,312,365,310,297,325,365,290,372,365,310,190   22  833
                DATA,2  295,357,274,366,294,125,290,368,325,350,325,300,310   22  834
                DATA,2  210,265,210,370,322,210,260,302,180,360,275,410,365   22  835
                DATA,2  314,210,375,360,282,315,337,286,335,308,200,320,210   22  836
                DATA,2  275,365,351,366,175,369,235,210,425,310,450,359,210   22  837
                DATA,2  339,339,450,383,400,365,377,365,365,365,305,305,110   22  838
                DATA,2  110,400,364,400,371,450,110,285,285,400,400,305,305   22  839
                DATA,2  110,380,365,300,210,365,210,250,450,290,250,382,356   22  840
                DATA,2  210,210,210,230,355,368,410,365,410,200,550,550,550   22  841
                DATA,2  450,400,400,100,550,550,550,400,550,180,180           22  842
                DATA,2  210,210,210,210,210                                   22  843
                BOUND   4                                                     22  844
                SPACE   2                                                     22  844
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DAYBRK    DATA      1                                                    22  845
JJ        DATA      0                                                    22  846
LINKSI    DATA,2    0,29,60,194,255,255                                  22  847
          SPACE     2                                                    22  848
PATNUM    DATA      -1,-1,-1                                             22  849
*         ***  15 MINUTE REPORT FLAG                                     22  850
PRTFLG    DATA      1                                                    22  851
SECCBNSI  RES       0                                                    22  852
          DATA,1    0,11,30,74,115                                       22  853
          BOUND     4                                                    22  854
          SPACE     2                                                    22  855
SECCBNT   DATA,1    0,12,13,14,15,16,17,18,19,20,22,1,2,3,4,5,6,8,9      22  856
          DATA,1    10,11,21,102                                         22  857
          DATA,1    103,104,105,119,120,121,122,23,24,25                 22  858
          DATA,1    26,53,54,55,58,59,60,61,62,63,64,65,66,67,68,69      22  859
          DATA,1    70,71,72,73,74,75,76,80,81,82,83,84,85,86,87,88      22  860
          DATA,1    89,90,92,93,95,96,97,98,99,27,28,29,30,31,32,33,34   22  861
          DATA,1    35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50      22  862
          DATA,1    51,52,56,57,91,94,108,109,110,111,112,113,114        22  863
          DATA,1    115,116,117,118                                      22  864
          BOUND     4                                                    22  865
          SPACE     2                                                    22  866
SSFW      DATA      0                                                    22  867
          SPACE     2                                                    22  868
BLK13     DSECT     0                                                    22  869
*         *** DWL       DETECTOR-LINK   ARRAY ***                        22  870
DWL       RES       0                                                    22  871
          DATA,2    18,19,19,19,20,20,21,22,23,23,23,24,24,24,25,25,26   22  872
          DATA,2    26,26,27,27,28,29,29,30,30,31,31,31,32,32,33,33,33   22  873
          DATA,2    34,34,35,35,36,36,37,37,1,1,1,2,2,2,3,4,4,5,6,6,6    22  874
          DATA,2    7,7,8,8,9,9,10,10,10,11,11,12,14,15,16,17,49,50,51   22  875
          DATA,2    52,53,54,55,56,57,58,59,60,194,194,195,196,196,196   22  876
          DATA,2    197,197,197,198,198,198,199,200,200,200,201,202,202  22  877
          DATA,2    203,204,205,206,206,206,207,207,208,208,208,209,209  22  878
          DATA,2    209,210,211,211,211,212,213,213,213,214,214,214,215  22  879
          DATA,2    215,215,216,216,216,217,217,217,218,219,220,221,222  22  880
          DATA,2    223,223,223,224,225,225,225,226,227,228,229,230,231  22  881
          DATA,2    232,233,234,235,235,235,236,236,236,237,238,238,239  22  882
          DATA,2    239,239,240,240,241,242,243,244,245,245,245,246,246  22  883
          DATA,2    246,247,247,61,61,61,62,62,62,63,64,64,64,65,65,65   22  884
          DATA,2    66,66,66,67,67,67,68,68,68,69,70,248,248,249,249,250 22  885
          DATA,2    71,71,71,72,72,73,73,73,74,74,74,75,75,75,76,76,76   22  886
          DATA,2    77,78,78,78,79,79,79,80,81,81,81,82,82,82,83,84,84   22  887
          DATA,2    84,85,86,87,87,88,88,88,89,89,90,91,92,92,93,94,94   22  888
          DATA,2    94,95,96,96,96,97,97,97,98,98,99,100,100,100,101,102 22  889
          DATA,2    102,102,103,103,103,103,104,104,105,106,107,107,107,108 22 890
          DATA,2    108,108,109,109,109,110,110,111,111,111,112,113,113  22  891
          DATA,2    113,114,115,116,117,118,119,120,121,0,0,122,123      22  892
          DATA,2    123,123,124,124,124,125,125,125,126,126,126,127,128  22  893
          DATA,2    128,128,129,130,131,132,133,133,133,134,134,134,135  22  894
          DATA,2    136,136,136,137,137,137,138,139,140,141,142,143,144  22  895
          DATA,2    144,144,145,145,145,146,146,146,147,147,147,148,148  22  896
          DATA,2    148,149,150,150,150,151,151,151,152,152,152,153,153  22  897
          DATA,2    153,154,155,156,156,156,157,157,157,158,158,158,159  22  898
          DATA,2    159,159,160,160,160,161,162,162,162,163,163,163,164  22  899
          DATA,2    165,166,167,167,167,168,169,169,171,170,170,172,172  22  900
          DATA,2    172,173,173,173,174,174,175,176,176,176,177,178,179  22  901
          DATA,2    180,181,181,181,182,182,182,183,183,184,184,184,185  22  902
          DATA,2    185,185,186,186,186,187,188,188,188,189,189,189,190  22  903
          DATA,2    190,190,191,191,191,192,193,193,193,251,251,251,252  22  904
          DATA,2    252,252,253,254,38,38,39,39,40,40,41,41,42,2,43,43   22  905
          DATA,2    44,44,45,45,46,46,47,47,48,48,255,256,257,258,259    22  906
          DATA,2    260,261,262,263,264,265,266,267,268,269,270          22  907
          BOUND     4                                                    22  908
*         **** DWLP      DETECTOR  WITH  LINK  POSITION ***              22  909
DWLP      RES       0                                                    22  910
          DATA      X'5CBE77AD'                                          22  911
          DATA      X'5AB6A596'                                          22  912
          DATA      X'C0240960'                                          22  913
          DATA      X'54ACFAAD'                                          22  914
          DATA      X'B6828802'                                          22  915
          DATA      X'D560BE85'                                          22  916
          DATA      X'6DB5A5AD'                                          22  917
          DATA      X'F56ADD28'                                          22  918
          DATA      X'12B09DEC'                                          22  919
          DATA      X'5AEAB212'                                          22  920
          DATA      X'DD04355A'                                          22  921
          DATA      X'05B605D6'                                          22  922
          DATA      X'A6DB568A'                                          22  923
          DATA      X'35B2B5B5'                                          22  924
          DATA      X'B4EDAB6A'                                          22  925
          DATA      X'55555000'                                          22  926
          DATA      X'4800000'                                           22  927
          BOUND     4                                                    22  928
          SPACE     2                                                    22  929
EBUC      DATA      1                                                    22  930
FTAB      DATA      0                                                    22  931
FTABWRD   DATA      1                                                    22  932
MBEIF     RES       0                                                    22  933
          DB1       NLR/4                                                22  934
          DATA      X'02020202'                                          22  935
          SPACE     2                                                    22  936
BLK14     DSECT     0                                                    22  937
*         FAIL TAB LENGTHS MUST BE STORED SEQUENTIALLY                   22  938
CBNLENG   DATA      0                                                    22  939
DETLENG   DATA      0                                                    22  940
CBMLENG   DATA      0                                                    22  941
BDETLENG  DATA      0                                                    22  942
BCBMLENG  DATA      0                                                    22  943
CBNTLN    RES       0                                                    22  944
          DATA      -1,-1,-1                                1            22  945
          DATA      -1,-1,-1                                2            22  946
          DATA      -1,-1,-1                                3            22  947
          DATA      -1,-1,-1                                4            22  948
          DATA      -1,-1,-1                                5            22  949
          DATA      -1,-1,-1                                6            22  950
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DATA     -1,-1,-1                                                    7          22  951
DATA     -1,-1,-1                                                    8          22  952
DATA,2   20,24,23,19,22,14                                           9          22  953
DATA,2   26,25,27,29,28,-1                                          10          22  954
DATA,2   31,33,32,30,-1,-1                                          11          22  955
DATA,2   35,37,34,36,-1,-1                                          12          22  956
DATA     -1,-1,-1                                                   13          22  957
DATA,2   144,118,-1,-1,-1,-1                                        14          22  958
DATA,2   1,0,4,2,3,-1                                               15          22  959
DATA,2   147,93,-1,-1,-1,-1                                         16          22  960
DATA,2   9,6,10,7,8,5                                               17          22  961
DATA,2   11,12,-1,-1,-1,-1     18                                               22  962
DATA,2   14,-1,-1,-1,-1,-1                                          19          22  963
DATA,2   16,15,17,-1,-1,-1                                          20          22  964
DATA,2   49,51,50,-1,-1,-1                                          21          22  965
DATA     -1,-1,-1                                                   22          22  966
DATA,2   53,55,54,56,-1,-1                                          23          22  967
DATA,2   57,59,60,58,-1,-1                                          24          22  968
DATA     -1,-1,-1                                                   25          22  969
DATA     -1,-1,-1                                                   26          22  970
DATA     -1,-1,-1                                                   27          22  971
DATA     -1,-1,-1                                                   28          22  972
DATA     -1,-1,-1                                                   29          22  973
DATA     -1,-1,-1                                                   30          22  974
DATA,2   194,196,198,197,195,-1                                     31          22  975
DATA,2   199,-1,-1,-1,-1,-1                                         32          22  976
DATA,2   200,202,201,-1,-1,-1                                       33          22  977
DATA     -1,-1,-1                                                   34          22  978
DATA     -1,-1,-1                                                   35          22  979
DATA     -1,-1,-1                                                   36          22  980
DATA,2   203,-1,-1,-1,-1,-1                                         37          22  981
DATA     -1,-1,-1                                                   38          22  982
DATA,2   205,204,-1,-1,-1,-1     39                                             22  983
DATA,2   206,207,208,209,-1,-1                                      40          22  984
DATA,2   211,213,210,212,-1,-1                                      41          22  985
DATA,2   216,215,217,214,-1,-1                                      42          22  986
DATA,2   218,219,220,221,-1,-1                                      43          22  987
DATA,2   222,-1,-1,-1,-1,-1                                         44          22  988
DATA,2   223,225,224,-1,-1,-1                                       45          22  989
DATA,2   226,227,-1,-1,-1,-1                                        46          22  990
DATA,2   230,231,228,229,-1,-1                                      47          22  991
DATA,2   232,233,234,-1,-1,-1                                       48          22  992
DATA,2   236,235,-1,-1,-1,-1                                        49          22  993
DATA,2   238,239,240,237,-1,-1                                      50          22  994
DATA,2   242,241,-1,-1,-1,-1                                        51          22  995
DATA,2   243,244,-1,-1,-1,-1                                        52          22  996
DATA,2   247,246,245,-1,-1,-1                                       53          22  997
DATA,2   64,62,61,63,-1,-1                                          54          22  998
DATA,2   65,67,66,68,-1,-1                                          55          22  999
DATA,2   69,-1,-1,-1,-1,-1     56                                               22 1000
DATA,2   249,248,-1,-1,-1,-1                                        57          22 1001
DATA,2   250,-1,-1,-1,-1,-1                                         58          22 1002
DATA,2   71,72,73,-1,-1,-1                                          59          22 1003
DATA,2   74,76,75,-1,-1,-1                                          60          22 1004
DATA,2   79,78,77,139,-1,-1                                         61          22 1005
DATA     -1,-1,-1                                                   62          22 1006
DATA,2   80,125,-1,-1,-1,-1     63                                              22 1007
DATA,2   81,133,-1,-1,-1,-1                                         64          22 1008
DATA,2   82,84,151,-1,-1,-1     65                                              22 1009
DATA,2   87,89,88,85,86,-1      66                                              22 1010
DATA,2   91,90,-1,-1,-1,-1                                          67          22 1011
DATA,2   94,92,95,181,-1,-1     68                                              22 1012
DATA,2   97,98,99,-1,-1,-1      69                                              22 1013
DATA,2   103,104,101,-1,-1,-1   70                                              22 1014
DATA,2   106,105,-1,-1,-1,-1                                        71          22 1015
DATA,2   107,108,109,-1,-1,-1                                       72          22 1016
DATA,2   110,113,111,112,-1,-1                                      73          22 1017
DATA,2   116,115,-1,-1,-1,-1    74                                              22 1018
DATA,2   119,121,120,-1,-1,-1   75                                              22 1019
DATA,2   124,123,-1,-1,-1,-1                                        76          22 1020
DATA,2   126,128,127,-1,-1,-1                                       77          22 1021
DATA     -1,-1,-1                                                   78          22 1022
DATA     -1,-1,-1                                                   79          22 1023
DATA     -1,-1,-1                                                   80          22 1024
DATA,2   130,132,131,-1,-1,-1                                       81          22 1025
DATA,2   134,137,136,135,138,-1                                     82          22 1026
DATA,2   140,141,143,142,-1,-1                                      83          22 1027
DATA,2   146,145,-1,-1,-1,-1                                        84          22 1028
DATA,2   148,150,149,-1,-1,-1                                       85          22 1029
DATA,2   152,129,122,-1,-1,-1                                       86          22 1030
DATA,2   153,156,155,154,-1,-1                                      87          22 1031
DATA,2   157,159,160,158,-1,-1                                      88          22 1032
DATA,2   163,162,161,164,-1,-1                                      89          22 1033
DATA,2   165,166,-1,-1,-1,-1                                        90          22 1034
DATA,2   167,169,168,177,-1,-1                                      91          22 1035
DATA     -1,-1,-1                                                   92          22 1036
DATA,2   170,172,173,171,-1,-1                                      93          22 1037
DATA,2   174,176,175,-1,-1,-1                                       94          22 1038
DATA     -1,-1,-1                                                   95          22 1039
DATA,2   178,180,179,-1,-1,-1                                       96          22 1040
DATA,2   182,184,183,52,-1,-1                                       97          22 1041
DATA     -1,-1,-1                                                   98          22 1042
DATA,2   185,188,186,189,187,-1                                     99          22 1043
DATA,2   190,191,193,192,-1,-1                                     100          22 1044
DATA     -1,-1,-1                                                  101          22 1045
DATA     -1,-1,-1                                                  102          22 1046
DATA     -1,-1,-1                                                  103          22 1047
DATA     -1,-1,-1                                                  104          22 1048
DATA     -1,-1,-1                                                  105          22 1049
DATA     -1,-1,-1                                                  106          22 1050
DATA     -1,-1,-1                                                  107          22 1051
DATA     -1,-1,-1                                                  108          22 1052
DATA     -1,-1,-1                                                  109          22 1053
DATA     -1,-1,-1                                                  110          22 1054
DATA     -1,-1,-1                                                  111          22 1055
DATA     -1,-1,-1                                                  112          22 1056
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                DATA    *1,-1,-1                                        113         22 1057
                DATA    *1,-1,-1                                        114         22 1058
                DATA,2  251,252,-1,-1,-1,-1                             115         22 1059
                DATA    -1,-1,-1                                        116         22 1060
                DATA    -1,-1,-1                                        117         22 1061
                DATA    -1,-1,-1                                        118         22 1062
                DATA,2  254,253,-1,-1,-1,-1                             119         22 1063
                DATA,2  39,41,38,40,-1,-1                               120         22 1064
                DATA,2  43,42,44,45,-1,-1                               121         22 1065
                DATA    -1,-1,-1                                        122         22 1066
                DATA,2  46,48,47,-1,-1,-1                               123         22 1067
                DATA    -1,-1,-1                                        124         22 1068
                BOUND   4                                                           22 1069
ENTFLG          DATA    -1,0,0,0,0                                                  22 1070
KCL             DATA    80,100,110,120                                              22 1071
                DATA    130,140,150,160                                             22 1072
                DATA    170,180,190,200                                             22 1073
                DATA    210,220,230,240,90                                          22 1074
KCTF            DATA    0,0,0,0,0,0,0,0,0,0                                         22 1075
                DATA    0,0,0,0,0,0,0                                               22 1076
KCSF            DATA    0,0,0,0,0,0,0,0,0,0                                         22 1077
                DATA    0,0,0,0,0,0,0                                               22 1078
                BOUND   4                                                           22 1079
NUMVAR          RES     0                                                           22 1080
                DATA,1  2,2,2,2,2,2,2,0,2,3,2,2                                     22 1081
                DATA,1  2,2,2,2,3,2,2,2,2,2,3,2                                     22 1082
                DATA,1  2,2,2,2,2,2,2,2,3,2,2,2                                     22 1083
                DATA,1  3,3,2,2,2,2,2,2,2,2,2,2                                     22 1084
                DATA,1  2,2,2,2,2,2,2,2,2,2,2,2                                     22 1085
                DATA,1  2,2,2,2,3,3,2,2,2,2,2,2                                     22 1086
                DATA,1  2,2,3,2,2,0,0,2,2,2,2,2                                     22 1087
                DATA,1  2,2,2,2,2,2,3,2,3,2,2,2                                     22 1088
                DATA,1  2,2,2,2,2,0,0,2,2,2,3,0,0                                   22 1089
                DATA,1  2,2,2,2,2,2,2,2,2,2,2,2,2                                   22 1090
                DATA,1  2,2,2,0                         124 CONTROLLERS             22 1091
                SPACE   2                                                           22 1092
SEMMSK          RES     0                                                           22 1093
                DATA    X'FBFFFF7F'     CONTROLLERS 6, 25                           22 1094
                DATA    0                                                           22 1095
                DATA    X'FFFFFFBF'     CONTROLLER 58                               22 1096
                DATA    0                                                           22 1097
                DATA    X'FFFFFFFF'     NONE                                        22 1098
                DATA    0                                                           22 1099
                DATA    X'FFFFFFBF'     CONTROLLER 122                              22 1100
                DATA    0                                                           22 1101
                SPACE   2                                                           22 1102
VARINT          RES     0                                                           22 1103
                DATA,1  0,2,0,0,0,6,0,0,0,0,3,0,0                                   22 1104
                DATA,1  0,3,0,0,0,1,4,0,0,0,1,0,0                                   22 1105
                DATA,1  1,4,0,0,0,0,0,0,0,2,8,0,0                                   22 1106
                DATA,1  1,7,4,0,0,1,4,0,0,0,2,0,0                                   22 1107
                DATA,1  0,4,0,0,0,4,0,0,0,3,5,0,0                                   22 1108
                DATA,1  0,7,0,0,0,1,4,7,0,0,2,0,0                                   22 1109
                DATA,1  0,2,0,0,0,2,13,0,0,0,1,5,0,0                                22 1110
                DATA,1  0,2,0,0,0,1,6,3,0,0,0,7,0,0                                 22 1111
                DATA,1  0,1,0,0,0,12,0,0,0,0,5,0,0                                  22 1112
                DATA,1  0,4,0,0,0,1,7,0,0,0,1,4,0,0                                 22 1113
                DATA,1  4,13,0,0,0,1,6,0,0,0,0,4,2,0                                22 1114
                DATA,1  1,5,0,0,0,0,2,0,0,0,2,6,0,0                                 22 1115
                DATA,1  2,6,14,0,0,1,3,6,0,0,0,4,0,0                                22 1116
                DATA,1  1,4,0,0,0,1,4,0,0,0,1,3,0,0                                 22 1117
                DATA,1  0,2,0,0,0,2,0,0,0,1,3,0,0                                   22 1118
                DATA,1  0,2,0,0,0,2,6,0,0,0,0,2,0,0                                 22 1119
                DATA,1  0,2,0,0,0,2,0,0,0,0,2,0,0                                   22 1120
                DATA,1  0,2,0,0,0,2,6,0,0,0,1,6,0,0                                 22 1121
                DATA,1  1,5,0,0,0,1,4,0,0,0,0,2,0,0                                 22 1122
                DATA,1  0,1,0,0,0,2,5,0,0,0,3,6,0,0                                 22 1123
                DATA,1  2,6,0,0,0,0,3,0,0,0,2,6,0,0                                 22 1124
                DATA,1  2,6,0,0,0,1,4,7,0,0,1,14,5,0                                22 1125
                DATA,1  2,6,0,0,0,1,6,0,0,0,1,6,0,0                                 22 1126
                DATA,1  1,6,0,0,0,9,0,0,0,1,3,0,0,0                                 22 1127
                DATA,1  1,3,0,0,0,2,6,0,0,0,1,6,3,0                                 22 1128
                DATA,1  1,5,0,0,0,1,4,0,0,0,0,0,0,0                                 22 1129
                DATA,1  0,0,0,0,0,0,0,0,0,1,4,0,0,0                                 22 1130
                DATA,1  1,4,0,0,0,1,4,0,0,0,1,4,0,0                                 22 1131
                DATA,1  2,6,0,0,0,5,2,0,0,0,1,3,0,0                                 22 1132
                DATA,1  1,4,0,0,0,0,3,0,0,0,2,6,0,0                                 22 1133
                DATA,1  1,4,7,0,0,1,4,0,0,0,1,4,7,0                                 22 1134
                DATA,1  1,4,0,0,0,1,4,0,0,0,1,4,0,0                                 22 1135
                DATA,1  2,5,0,0,0,1,4,0,0,0,1,7,0,0                                 22 1136
                DATA,1  0,2,0,0,0,0,0,0,0,0,0,0,0,0                                 22 1137
                DATA,1  1,5,0,0,0,1,6,0,0,0,1,4,0,0                                 22 1138
                DATA,1  4,8,12,0,0,0,0,0,0,0,0,0,0,0                                22 1139
                DATA,1  0,5,0,0,0,1,6,0,0,0,2,6,0,0                                 22 1140
                DATA,1  2,6,0,0,0,2,0,0,0,1,4,0,0,0                                 22 1141
                DATA,1  1,4,0,0,0,1,4,0,0,0,0,2,0,0                                 22 1142
                DATA,1  1,4,0,0,0,2,0,0,0,1,4,0,0,0                                 22 1143
                DATA,1  3,10,0,0,0,1,0,0,0,0,2,0,0,0                                22 1144
*                 *** LNKPT         LINK PHASE TABLE ***                            22 1145
*                       A1=0  A2=1  B1=2  B2=3   C1=4  D1=6                         22 1146
LNKPT           DATA,1  1,0,4,2,2,0,1,4,0,0,2,0,0,0,0,0,2,0,4,4,3,0,4,2,2,1,2      22 1147
                DATA,1  0,3,4,4,4,0,2,2,1,2,0,0,3,1,2,0,0,3,1,2,0,3,4,0,0,2,1,0,2,0 22 1148
                DATA,1  0,0,2,0,2,0,4,2,2,4,2,0,0,0,2,1,3,0,2,0,4,1,2,0,2,1,0       22 1149
                DATA,1  2,0,0,0,0,0,2,2,0,6,0,0,4,2,2,0,2,2,2,0,0,4,0,2,0,0,0,0,0   22 1150
                DATA,1  2,2,0,0,1,2,2,0,2,2,1,2,2,2,0,4,0,0,4,2,2,2,2,0,2,0,0,2,2  22 1151
                DATA,1  0,2,0,2,0,0,2,1,0,2,2,0,0,2,0,0,2,0,0,0,0,2,2,2,0,0,2,0     22 1152
                DATA,1  2,0,4,1,2,0,2,2,0,2,0,0,0,0,2,2,0,0,4,2,0,0,2,4,0,2,0,2     22 1153
                DATA,1  0,2,1,0,2,2,2,1,4,0,2,0,3,0,0,2,4,3,0,0,2,2,4,4,0,0,1       22 1154
                DATA,1  2,3,0,0,2,2,4,2,0,3,0,0,0,2,2,2,0,2,2,0,2,2,2,2,0,0,0,0     22 1155
                DATA,1  2,2,0,4,0,1,2,2,0,0,0,4,2,0,2,0,0,0,2,2,0                   22 1156
                BOUND   4                                                           22 1157
                SPACE   2                                                           22 1158
BLK27           DSECT   0                                                           22 1159
OETDSP          RES     0                                                           22 1160
                DATA,2  007,007,007,007,009,009,011,013,013,013     001 - 010      22 1161
                DATA,2  013,015,015,015,017,017,019,019,019,021     011 - 020      22 1162
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                DATA,2    021,023,025,025,027,027,029,029,029,031      021 - 030 22 1163
                DATA,2    031,033,033,033,016,016,035,035,010,010      031 - 040 22 1164
                DATA,2    037,037,008,012,012,012,014,014,014,022      041 - 050 22 1165
                DATA,2    020,020,018,018,018,018,030,030,032,032      051 - 060 22 1166
                DATA,2    032,032,024,024,024,026,036,257,001,028      061 - 070 22 1167
                DATA,2    003,005,038,039,041,043,045,047,049,051      071 - 080 22 1168
                DATA,2    053,055,057,059,179,179,179,006,006,006      081 - 090 22 1169
                DATA,2    042,042,042,181,181,181,052,044,044,044      091 - 100 22 1170
                DATA,2    048,050,050,046,060,058,182,182,182,183      101 - 110 22 1171
                DATA,2    183,054,054,054,056,056,056,185,180,180      111 - 120 22 1172
                DATA,2    180,187,189,189,189,191,191,191,193,193      121 - 130 22 1173
                DATA,2    193,195,195,195,197,197,197,199,199,201      131 - 140 22 1174
                DATA,2    201,203,205,205,205,207,207,207,207,209      141 - 150 22 1175
                DATA,2    211,213,213,184,184,188,188,186,190,190      151 - 160 22 1176
                DATA,2    190,194,194,194,198,192,192,196,196,196      161 - 170 22 1177
                DATA,2    202,202,212,214,215,200,217,217,217,219      171 - 180 22 1178
                DATA,2    219,219,204,204,208,208,208,061,061,061      181 - 190 22 1179
                DATA,2    063,065,065,065,210,210,210,067,067,067      191 - 200 22 1180
                DATA,2    069,069,069,206,206,206,216,071,221,221      201 - 210 22 1181
                DATA,2    218,218,223,073,073,073,220,220,075,075      211 - 220 22 1182
                DATA,2    075,077,077,077,062,062,062,066,066,066      221 - 230 22 1183
                DATA,2    079,064,064,064,068,068,068,072,070,070      231 - 240 22 1184
                DATA,2    070,081,081,081,222,224,224,224,236,078      241 - 250 22 1185
                DATA,2    074,074,083,083,083,076,076,080,085,087      251 - 260 22 1186
                DATA,2    087,087,089,089,089,089,091,091,091,093      261 - 270 22 1187
                DATA,2    093,093,095,095,097,099,099,099,101,103      271 - 280 22 1188
                DATA,2    103,103,105,105,105,107,107,082,084,109      281 - 290 22 1189
                DATA,2    109,109,086,086,086,111,111,111,092,092      291 - 300 22 1190
                DATA,2    090,090,090,090,096,096,096,257,100,088      301 - 310 22 1191
                DATA,2    108,104,106,098,113,257,112,257,115,115      311 - 320 22 1192
                DATA,2    115,102,102,102,257,110,257,117,117,117      321 - 330 22 1193
                DATA,2    117,119,119,119,121,123,114,125,257,127      331 - 340 22 1194
                DATA,2    257,116,116,116,116,118,118,118,129,129      341 - 350 22 1195
                DATA,2    129,129,240,120,120,242,244,257,246,257      351 - 360 22 1196
                DATA,2    248,248,248,250,250,250,257,126,257,252      361 - 370 22 1197
                DATA,2    252,252,252,124,124,124,257,130,257,131      371 - 380 22 1198
                DATA,2    131,131,133,133,133,135,137,128,128,128      381 - 390 22 1199
                DATA,2    139,139,139,141,141,141,143,143,143,145      391 - 400 22 1200
                DATA,2    145,145,147,149,149,149,151,151,151,153      401 - 410 22 1201
                DATA,2    254,155,136,136,136,157,159,159,146,146      411 - 420 22 1202
                DATA,2    146,138,138,138,134,134,134,154,154,154      421 - 430 22 1203
                DATA,2    140,140,140,156,142,144,148,257,257,257      431 - 440 22 1204
                DATA,2    150,150,150,152,152,158,158,158,161,161      441 - 450 22 1205
                DATA,2    161,163,163,163,165,167,167,167,169,169      451 - 460 22 1206
                DATA,2    169,171,171,171,173,173,173,175,177,177      461 - 470 22 1207
                DATA,2    177,164,164,164,168,168,168,170,255,178      471 - 480 22 1208
                DATA,2    178,166,166,174,174,162,162,226,226,176      481 - 490 22 1209
                DATA,2    176,228,228,172,172,230,230,232,232,234      491 - 500 22 1210
                DATA,2    234,225,227,004,002,259,229,231,233,243      501 - 510 22 1211
                DATA,2    239,247,241,257,249,251,257                  511 - 517 22 1212
                BBUND     4                                                      22 1213
LNKDSP          RES       0                                                      22 1214
                DATA,2    008,012,014,022,020,257,018,030,257,032      001 - 010 22 1215
                DATA,2    024,026,036,257,001,028,003,005,257,007      011 - 020 22 1216
                DATA,2    009,011,257,013,015,017,019,021,023,025      021 - 030 22 1217
                DATA,2    027,029,031,033,016,035,010,037,178,166      031 - 040 22 1218
                DATA,2    174,162,226,176,228,172,230,232,234,038      041 - 050 22 1219
                DATA,2    039,041,043,045,047,049,051,053,055,057      051 - 060 22 1220
                DATA,2    059,208,061,063,065,210,067,069,206,216      061 - 070 22 1221
                DATA,2    071,073,220,075,077,062,066,079,064,068      071 - 080 22 1222
                DATA,2    072,070,081,222,224,236,078,074,083,076      081 - 090 22 1223
                DATA,2    080,085,257,087,089,257,091,093,095,097      091 - 100 22 1224
                DATA,2    099,101,103,105,107,082,084,109,086,111      101 - 110 22 1225
                DATA,2    092,090,257,096,257,100,088,108,104,106      111 - 120 22 1226
                DATA,2    098,113,112,115,102,110,117,257,119,121      121 - 130 22 1227
                DATA,2    123,114,125,127,116,257,118,129,257,240      131 - 140 22 1228
                DATA,2    257,120,242,244,246,248,250,126,252,257      141 - 150 22 1229
                DATA,2    124,130,131,133,135,137,128,139,141,143      151 - 160 22 1230
                DATA,2    145,147,149,151,153,254,155,136,157,159      161 - 170 22 1231
                DATA,2    257,146,138,134,154,257,140,156,142,144      171 - 180 22 1232
                DATA,2    148,257,190,152,158,161,163,165,167,169      181 - 190 22 1233
                DATA,2    171,173,175,177,179,257,006,042,181, 52      191 - 200 22 1234
                DATA,2    044,048,050,046,060,058,182,183,054,056      201 - 210 22 1235
                DATA,2    185,180,187,189,191,193,195,197,257,199      211 - 220 22 1236
                DATA,2    201,257,203,205,257,207,209,211,257,213      221 - 230 22 1237
                DATA,2    164,257,257,188,186,190,194,198,192,196      231 - 240 22 1238
                DATA,2    202,212,214,215,200,217,219,204,221,218      241 - 250 22 1239
                DATA,2    223,164,168,170,255,225,227,004,002,259      251 - 260 22 1240
                DATA,2    229,231,233,243,239,247,241,257,249,251      261 - 270 22 1241
                DATA,2    527,527                                      271 - 272 22 1242
                BBUND     4                                                      22 1243
                SPACE     2                                                      22 1244
BLK15           DSECT     0                                                      22 1245
CHSET           DATA      X'FO'                MACHINE IS EBCDIC                 22 1246
HBUFL           DATA      HBUFLNG                                                22 1247
IGMI            DATA      X'7FFFFFFF'                                            22 1248
NNUMF           DATA      NNUMBF                                                 22 1249
NBMCH           DATA      32                                                     22 1250
NCW22           DATA      2NCWRD                                                 22 1251
NCWD2           DATA      NCWRD2                                                 22 1252
NCWD            DATA      NCWRD                                                  22 1253
NMANP           DATA      NMANPAT                                                22 1254
NUMCTL          DATA      NCS                                                    22 1255
NUMLNK          DATA      NL                                                     22 1256
NUMSGT          DATA      NST                                                    22 1257
NUMVED          DATA      ND                                                     22 1258
NPATB           DATA      NPATBYT                                                22 1259
NPB4            DATA      NPATBYT4                                               22 1260
NRESP           DATA      NRESPAT                                                22 1261
NSECT-1         DATA      NST-1                                                  22 1262
TBSIZ           DATA      TBSIZE15                                               22 1263
TBYTE           DATA      TBYTE15                                                22 1264
CS              DATA      C$                                                     22 1265
DS              DATA      D$                                                     22 1266
FS              DATA      F$                                                     22 1267
NS              DATA      N$                                                     22 1268
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Q$          DATA    Q$                                          22 1269
R$          DATA    R$                                          22 1270
S$          DATA    S$                                          22 1271
SCS         DATA    SC$                                         22 1272
            SPACE   2                                           22 1273
$DATA$      RES     D                                           22 1274
BLK16       DSECT   D                                           22 1275
DBP         RES         1                                       22 1276
KNEW        RES         1                                       22 1277
TT          RES         1                                       22 1278
            SPACE   2                                           22 1279
BLK17       DSECT   0                                           22 1280
ADVINH      RES     2*NCWRD         BIT INTERLEAVED             22 1281
CICBYP      RES     2*NCWRD         BIT INTERLEAVED             22 1282
CPABY       RES     2*NCWRD         BIT INTERLEAVED             22 1283
IADVP       RES     2*NCWRD         BIT INTERLEAVED             22 1284
CNTDR       RES     NCR                                         22 1285
CONTNM      RES         1*                                      22 1286
I           RES         1;                                      22 1287
INTNUM      RES     NCR/4'                                      22 1288
INTNUML     RES     NCR/4                                       22 1289
INTOUT      RES     (NCR/4)+1                                   22 1290
K           RES         1                                       22 1291
STOTIM      RES     (NCR/4)+1                                   22 1292
TIMEOUT     RES     (NCR/4)+1                                   22 1293
LOOK        RES     NLR/4                                       22 1294
            SPACE   2                                           22 1295
BLK18       DSECT   0                                           22 1296
CICTF       RES     2*NCWRD         BIT INTERLEAVED             22 1297
CICTBOF     RES     2*NCWRD         BIT INTERLEAVED             22 1298
STBYD       RES     2*NCWRD         BIT INTERLEAVED             22 1299
CONTAB      RES     NCR/2                                       22 1300
COMBFF      RES     NCR/4                                       22 1301
CYCLC       RES     NCR/4                                       22 1302
ENTRYINT    RES     16*(NCR/4)                                  22 1303
ENTRYBFF    RES     NCR/4                                       22 1304
GABBCABC    RES     4*(NCR/4)                                   22 1305
GAWTEMP     RES     NCR/4                                       22 1306
GBWTEMP     RES     NCR/4                                       22 1307
GLABC       RES     4*(NCR/4)                                   22 1308
GMINABC4    RES     4*(NCR/4)                                   22 1309
GOABC       RES     4*(NCR/4)                                   22 1310
INTDUR      RES     16*(NCR/4)                                  22 1311
SUMABCT     RES     4*(NCR/4)                                   22 1312
TKM         RES     NCR/4                                       22 1313
WRKBFF      RES     NCR/4                                       22 1314
            SPACE   2                                           22 1315
BLK19       DSECT   0                                           22 1316
CC2         RES     NDR/4                                       22 1317
DFAIL       RES     NLR/4                                       22 1318
DBP         RES     (NDR/32)+1                                  22 1319
MI          RES     NCR/4                                       22 1320
RAWBCC      RES     NDR/2                                       22 1321
RAWSP       RES     NDR/2                                       22 1322
RTC         RES         1                                       22 1323
TSTART      RES     ND                                          22 1324
            SPACE   2                                           22 1325
BLK20       DSECT   0                                           22 1326
AVSP        RES         1                                       22 1327
DELDAY      RES     NLR/2                                       22 1328
NSDAY       RES     NLR/2                                       22 1329
SDAY        RES     NLR/2                                       22 1330
SPC         RES         1                                       22 1331
SPT         RES         1                                       22 1332
SDAY        RES     NLR/2                                       22 1333
VDAY        RES     NLR/2                                       22 1334
            SPACE   2                                           22 1335
BLK21       DSECT   0                                           22 1336
DPATNUM     RES     NSR/4                                       22 1337
FMSECF      RES         1                                       22 1338
FMSYSF      RES         1                                       22 1339
HSBUF       RES     HBUFLNG                                     22 1340
HCDF        RES         1                                       22 1341
TEAM        RES     NLR/4                                       22 1342
            SPACE   2                                           22 1343
BLK22       DSECT   0                                           22 1344
CRTBF1      RES       512                                       22 1345
CRTBF2      RES       512                                       22 1346
CRTDC1      RES         1                                       22 1347
CRTDC2      RES         1                                       22 1348
CRTFL1      RES         1                                       22 1349
CRTFL2      RES         1                                       22 1350
FLERFL      RES         1                                       22 1351
            SPACE   2                                           22 1352
BLK23       DSECT   0                                           22 1353
EXTOF       RES     (NLR/32)+1                                  22 1354
INHIBITE    RES         1                                       22 1355
LNKSPEED    RES         1                                       22 1356
MI          RES     1                                           22 1357
SACC        RES     NLR/2                                       22 1358
SADDR1C     RES         1                                       22 1359
SADDR2C     RES         1                                       22 1360
SACC        RES     NLR/2                                       22 1361
STMTEMP     RES         1                                       22 1362
TACC        RES     NLR/2                                       22 1363
TBUFF15     RES     TBSIZE15                                    22 1364
                                                                22 1365
BLK24       DSECT   0                                           22 1366
ARMIST      RES     NLR/2                                       22 1367
CBNDIS      RES         1                                       22 1368
DCF         RES         1                                       22 1369
DBA         RES     1                                           22 1370
FMTBUC      RES         1                                       22 1371
FSTFLG      RES         1                                       22 1372
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HOLIDF   RES      1                                                    22 1373
HOLIDTBL RES      96                                                   22 1374
NHOLIDAY RES      1                                                    22 1375
PANCOD   RES      1                                                    22 1376
PTN      RES      7*5                  PATTERN BUFFER                  22 1377
SWTFLG   RES      1                                                    22 1378
SUNDIS   RES      1                                                    22 1379
TWNESW   RES      1                                                    22 1380
WHIST    RES      NLR/2                                                22 1381
         SPACE    2                                                    22 1382
BLK25    DSECT    0                                                    22 1383
ANGLE    RES      NLR/2                                                22 1384
COSALF   RES      (NDR/32)*4                                           22 1385
CSTTAB   RES      NLR/2                                                22 1386
DETTAB   RES      NLR/2                                                22 1387
DIS      RES      (NDR/32)*1                                           22 1388
DSALF    RES      (NDR/32)*1                                           22 1389
DSQDE    RES      NSR/4                                                22 1390
FAILTAB  RES      4*NSR/8F                                             22 1391
NBR      RES      1                                                    22 1392
NDDES    RES      NSR/4                                                22 1393
NAI      RES      NSR/4                                                22 1394
NBFAIL   RES      1                                                    22 1395
SBAR     RES      NLR/4                                                22 1396
SECCFC   RES      NST                                                  22 1397
SECDFC   RES      NST                                                  22 1398
VBL      RES      NLR/2                                                22 1399
WHSF     RES      1                                                    22 1400
WSBF     RES      1                                                    22 1401
WSF      RES      1                                                    22 1402
         SPACE    2                                                    22 1403
BLK26    DSECT    0                                                    22 1404
DATE     RES      3                                                    22 1405
PREVDATE RES      3                                                    22 1406
LPBUF    RES      1*6                                                  22 1407
SAVRO    RES      1                                                    22 1408
SAVRB    EQU      SAVRO                                                22 1409
         BOUND    4                                                    22 1410
BLK19P   DSECT    0                                                    22 1411
CC2P     RES      NDR/4                                                22 1412
RAMDCP   RES      NDR/2                                                22 1413
RAWSPP   RES      NDR/2                                                22 1414
         SPACE    2                                                    22 1415
         BOUND    4                                                    22 1416
G2CONT   DSECT    0                                                    22 1417
WRKBFS   RES      4*(NCR/4)                                            22 1418
I0       RES      4*(NCR/4)                                            22 1419
IEA      RES      NCR/4                                                22 1420
ENTCYC   RES      NCR/4                                                22 1421
SPLIT    RES      4*(NCR/4)                                            22 1422
DATL0    RES      0.          END OF CLEARED AREA                      22 1423
CGMPN    DATA,1   3,2,2,1,1,2,1,0,1,1,1,2 CNT 1-12                    22 1424
         DATA,1   3,3,3,3,3,3,3,3,2,3,5    CNT 13 - 24               22 1425
         DATA,1   4,5,5,0,0,0,6,6,6,6,0,0,0 CNT 25-36                 22 1426
         DATA,1   0,0,6,6,6,6,0,0,0,0,0,0 CNT 37-48                   22 1427
         DATA,1   0,6,6,6,6,6,5,5,5,0,6,4,4 CNT 49-60                 22 1428
         DATA,1   4,5,5,5,5,5,5,5,5,5,5,4 CNT 61-72                   22 1429
         DATA,1   4,4,4,4,4,0,0,0,4,4,4,4 CNT 73-84                   22 1430
         DATA,1   4,4,4,4,4,5,5,0,5,5,0,4 CNT 85-96                   22 1431
         DATA,1   4,4,4,4,4,0,0,2,2,2,2,0,0 CNT 97-108                22 1432
         DATA,1   0,0,0,0,0,0,0,0,0,0,0,1 CNT 109-120                 22 1433
         DATA,1   2,2,2,0 CNT 121-124                                 22 1434
         SPACE    2                                                    22 1435
G2LINK   DSECT    0                                                    22 1436
LINKL    RES      0                                                    22 1437
         DATA,2   1070,1054          LINKS 1,2                        22 1438
         DATA,2   432,440            LINKS 3,4                        22 1439
         DATA,2   608,610            LINKS 5,6                        22 1440
         DATA,2   1270,1190          LINKS 7,8                        22 1441
         DATA,2   375,455            LINKS 9,10                       22 1442
         DATA,2   572,592            LINKS 11,12                      22 1443
         DATA,2   495,440            LINKS 13,14                      22 1444
         DATA,2   1048,490           LINKS 15,16                      22 1445
         DATA,2   1050,782           LINKS 17,18                      22 1446
         DATA,2   775,952            LINKS 19,20                      22 1447
         DATA,2   945,432            LINKS 21,22                      22 1448
         DATA,2   430,1112           LINKS 23,24                      22 1449
         DATA,2   1118,453           LINKS 25,26                      22 1450
         DATA,2   363,790            LINKS 27,28                      22 1451
         DATA,2   865,1327           LINKS 29,30                      22 1452
         DATA,2   1168,478           LINKS 31,32                      22 1453
         DATA,2   624,630            LINKS 33,34                      22 1454
         DATA,2   550,320            LINKS 35,36                      22 1455
         DATA,2   400,638            LINKS 37,38                      22 1456
         DATA,2   265,287            LINKS 39,40                      22 1457
         DATA,2   628,460            LINKS 41,42                      22 1458
         DATA,2   432,175            LINKS 43,44                      22 1459
         DATA,2   260,516            LINKS 45,46                      22 1460
         DATA,2   515,958            LINKS 47,48                      22 1461
         DATA,2   925,450            LINKS 49,50                      22 1462
         DATA,2   486,568            LINKS 51,52                      22 1463
         DATA,2   565,294            LINKS 53,54                      22 1464
         DATA,2   295,322            LINKS 55,56                      22 1465
         DATA,2   313,698            LINKS 57,58                      22 1466
         DATA,2   690,485            LINKS 59,60                      22 1467
         DATA,2   440,582            LINKS 61,62                      22 1468
         DATA,2   288,700            LINKS 63,64                      22 1469
         DATA,2   497,425            LINKS 65,66                      22 1470
         DATA,2   506,471            LINKS 67,68                      22 1471
         DATA,2   455,538            LINKS 69,70                      22 1472
         DATA,2   542,428            LINKS 71,72                      22 1473
         DATA,2   320,405            LINKS 73,74                      22 1474
         DATA,2   478,410            LINKS 75,76                      22 1475
         DATA,2   488,452            LINKS 77,78                      22 1476
         DATA,2   468,415            LINKS 79,80                      22 1477
         DATA,2   478,412            LINKS 81,82                      22 1478
         DATA,2   462,414            LINKS 83,84                      22 1479
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                DATA,2    458,449                 LINKS 85,86                     22 1480
                DATA,2    496,408                 LINKS 87,88                     22 1481
                DATA,2    472,1883                LINKS 89,90                     22 1482
                DATA,2    1883,499                LINKS 91,92                     22 1483
                DATA,2    488,424                 LINKS 93,94                     22 1484
                DATA,2    424,512                 LINKS 95,96                     22 1485
                DATA,2    514,634                 LINKS 97,98                     22 1486
                DATA,2    628,281                 LINKS 99,100                    22 1487
                DATA,2    282,552                 LINKS 101,102                   22 1488
                DATA,2    536,547                 LINKS 103,104                   22 1489
                DATA,2    542,265                 LINKS 105,106                   22 1490
                DATA,2    268,471                 LINKS 107,108                   22 1491
                DATA,2    470,402                 LINKS 109,110                   22 1492
                DATA,2    404,425                 LINKS 111,112                   22 1493
                DATA,2    426,425                 LINKS 113,114                   22 1494
                DATA,2    371,575                 LINKS 115,116                   22 1495
                DATA,2    535,414                 LINKS 117,118                   22 1496
                DATA,2    325,520                         LINKS 119,120           22 1497
                DATA,2    400,325                         LINKS 121,122           22 1498
                DATA,2    686,686                 LINKS 123,124                   22 1499
                DATA,2    557,530                 LINKS 125,126                   22 1500
                DATA,2    462,454                 LINKS 127,128                   22 1501
                DATA,2    552,558                 LINKS 129,130                   22 1502
                DATA,2    735,700                 LINKS 131,132                   22 1503
                DATA,2    412,450                 LINKS 133,134                   22 1504
                DATA,2    428,414                 LINKS 135,136                   22 1505
                DATA,2    512,640                 LINKS 137,138                   22 1506
                DATA,2    282,548                 LINKS 139,140                   22 1507
                DATA,2    442,390                 LINKS 141,142                   22 1508
                DATA,2    418,414                 LINKS 143,144                   22 1509
                DATA,2    424,436                 LINKS 145,146                   22 1510
                DATA,2    425,410                 LINKS 147,148                   22 1511
                DATA,2    380,442                 LINKS 149,150                   22 1512
                DATA,2    678,648                 LINKS 151,152                   22 1513
                DATA,2    402,432                 LINKS 153,154                   22 1514
                DATA,2    400,405                 LINKS 155,156                   22 1515
                DATA,2    380,0                           LINKS 157,158           22 1516
                DATA,2    255,480                 LINKS 159,160                   22 1517
                DATA,2    550,510                 LINKS 161,162                   22 1518
                DATA,2    540,452                 LINKS 163,164                   22 1519
                DATA,2    472,480                 LINKS 165,166                   22 1520
                DATA,2    430,452                 LINKS 167,168                   22 1521
                DATA,2    258,380                 LINKS 169,170                   22 1522
                DATA,2    225,200                 LINKS 171,172                   22 1523
                DATA,2    365,336                 LINKS 173,174                   22 1524
                DATA,2    362,372                 LINKS 175,176                   22 1525
                DATA,2    1230,1172               LINKS 177,178                   22 1526
                DATA,2    645,662                 LINKS 179,180                   22 1527
                DATA,2    500,522                 LINKS 181,182                   22 1528
                DATA,2    445,382                 LINKS 183,184                   22 1529
                DATA,2    492,496                 LINKS 185,186                   22 1530
                DATA,2    370,410                 LINKS 187,188                   22 1531
                DATA,2    268,216                 LINKS 189,190                   22 1532
                DATA,2    368,405                 LINKS 191,192                   22 1533
                DATA      0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0                 22 1534
                DATA      0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0                         22 1535
LINKHT          RES       0                                                       22 1536
                DATA,1    0,0,0,0                 LINKS 1-4                       22 1537
                DATA,1    0,0,0,0                 LINKS 5-8                       22 1538
                DATA,1    0,0,1,3                 LINKS 9-12                      22 1539
                DATA,1    4,7,0,2                 LINKS 12-16                     22 1540
                DATA,1    0,0,0,0                 LINKS 17-20                     22 1541
                DATA,1    0,0,0,0                 LINKS 21-24                     22 1542
                DATA,1    0,0,0,0                 LINKS 25-28                     22 1543
                DATA,1    0,0,0,0                 LINKS 29-32                     22 1544
                DATA,1    0,0,0,0                 LINKS 33-36                     22 1545
                DATA,1    0,3,3,1                 LINKS 37-40                     22 1546
                DATA,1    1,0,1,0                 LINKS 41-44                     22 1547
                DATA,1    0,0,0,0                 LINKS 45-48                     22 1548
                DATA,1    0,0,0,0                 LINKS 49-52                     22 1549
                DATA,1    0,0,0,3                 LINKS 53-56                     22 1550
                DATA,1    1,1,3,0                 LINKS 57-60                     22 1551
                DATA,1    0,0,4,4                 LINKS 61-64                     22 1552
                DATA,1    4,4,4,4                 LINKS 65-68                     22 1553
                DATA,1    4,4,4,4                 LINKS 69-72                     22 1554
                DATA,1    4,1,3,1                 LINKS 73-76                     22 1555
                DATA,1    3,1,3,1                 LINKS 77-80                     22 1556
                DATA,1    3,1,3,1                 LINKS 81-84                     22 1557
                DATA,1    3,1,3,1                 LINKS 85-88                     22 1558
                DATA,1    3,0,0,0                 LINKS 89-92                     22 1559
                DATA,1    0,0,0,0                 LINKS 93-96                     22 1560
                DATA,1    0,0,0,0                 LINKS 97-100                    22 1561
                DATA,1    0,0,0,0                 LINKS 101-104                   22 1562
                DATA,1    0,0,0,0                 LINKS 105-108                   22 1563
                DATA,1    0,1,1,1                 LINKS 109-112                   22 1564
                DATA,1    0,0,0,3                 LINKS 113 - 116                 22 1565
                DATA,1    0,0,0,0                 LINKS 117-120                   22 1566
                DATA,1    0,0,0,0                 LINKS 121-124                   22 1567
                DATA,1    0,0,0,0                 LINKS 125-128                   22 1568
                DATA,1    0,0,0,0                 LINKS 129-132                   22 1569
                DATA,1    0,0,0,1                 LINKS 133-136                   22 1570
                DATA,1    4,4,4,4                 LINKS 137-140                   22 1571
                DATA,1    3,1,0,0                 LINKS 141-144                   22 1572
                DATA,1    0,1,3,1                 LINKS 145-148                   22 1573
                DATA,1    3,3,4,4                 LINKS 149-152                   22 1574
                DATA,1    1,3,0,0                 LINKS 153-156                   22 1575
                DATA,1    3,1,3,1                 LINKS 157-160                   22 1576
                DATA,1    3,4,4,4                 LINKS 161-164                   22 1577
                DATA,1    3,3,3,3                 LINKS 165-168                   22 1578
                DATA,1    1,3,0,0                 LINKS 169-172                   22 1579
                DATA,1    0,0,0,0                 LINKS 173-176                   22 1580
                DATA,1    3,1,0,0                 LINKS 177-180                   22 1581
                DATA,1    0,0,0,0                 LINKS 181-184                   22 1582
                DATA,1    0,0,0,0                 LINKS 185-188                   22 1583
                DATA,1    0,1,0,6                 LINKS 189-192                   22 1584
                DATA      0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0                 22 1585
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IALPH   RES     0                                                       22 1586
        DATA,1  50,50,50,50,50,50,50,50,50,50                           22 1587
        DATA,1  50,50,50,50,50,50,50,50,50,50                           22 1588
        DATA,1  50,50,50,50,50,50,50,50,50,50                           22 1589
        DATA,1  50,50,50,50,50,50,50,50,50,50                           22 1590
        DATA,1  50,50,50,50,50,50,50,50,50,50                           22 1591
        DATA,1  50,50,50,50,50,50,50,50,50,50                           22 1592
        DATA,1  50,50,50,50,50,50,50,50,50,50                           22 1593
        DATA,1  50,50,50,50,50,50,50,50,50,50                           22 1594
        DATA,1  50,50,50,50,50,50,50,50,50,50                           22 1595
        DATA,1  50,50,50,50,50,50,50,50,50,50                           22 1596
        DATA,1  50,50,50,50,50,50,50,50,50,50                           22 1597
        DATA,1  50,50,50,50,50,50,50,50,50,50                           22 1598
        DATA,1  50,50,50,50,50,50,50,50,50,50                           22 1599
        DATA,1  50,50,50,50,50,50,50,50,50,50                           22 1600
        DATA,1  50,50,50,50,50,50,50,50,50,50                           22 1601
        DATA,1  50,50,50,50,50,50,50,50,50,50                           22 1602
        DATA,1  50,50,50,50,50,50,50,50,50,50                           22 1603
        DATA,1  50,50,50,50,50,50,50,50,50,50                           22 1604
        DATA,1  50,50,50,50,50,50,50,50,50,50                           22 1605
        DATA,1  50,50,50,50,50,50,50,50,50,50                           22 1606
        DATA,1  50,50,50,50,50,50,50,50,50,50                           22 1607
        DATA,1  50,50,50,50,50,50,50,50,50,50                           22 1608
        DATA,1  50,50,50,50,50,50,50,50,50,50                           22 1609
        DATA,1  50,50,50,50,50,50,50,50,50,50                           22 1610
        DATA,1  50,50,50,50,50,50,50,50,50,50                           22 1611
        DATA,1  50,50,50,50,50,50,50,50,50,50                           22 1612
        DATA,1  50,50,50,50             IALPH                           22 1613
BILNK   RES     0                                                       22 1614
        DATA,1  40,42,40,42                                             22 1615
        DATA,1  40,25,40,25                                             22 1616
        DATA,1  21,29,20,34                                             22 1617
        DATA,1  26,33,27,30                                             22 1618
        DATA,1  46,44,46,44                                             22 1619
        DATA,1  49,44,49,47                                             22 1620
        DATA,1  36,47,36,47                                             22 1621
        DATA,1  38,36,11,36                                             22 1622
        DATA,1  11,36,11,36                                             22 1623
        DATA,1  11,36,255,255                                           22 1624
        DATA,1  11,3,5,1                                                22 1625
        DATA,1  2,1,1,1                                                 22 1626
        DATA,1  12,7,13,12                                              22 1627
        DATA,1  18,16,18,16                                             22 1628
        DATA,1  52,16,52,15                                             22 1629
        DATA,1  56,54,122,124                                           22 1630
        DATA,1  129,146,151,153                                         22 1631
        DATA,1  132,137,143,150                                         22 1632
        DATA,1  184,110,127,74                                          22 1633
        DATA,1  149,84,79,157                                           22 1634
        DATA,1  131,161,135,165                                         22 1635
        DATA,1  141,134,179,190                                         22 1636
        DATA,1  153,126,119,126                                         22 1637
        DATA,1  114,111,73,72                                           22 1638
        DATA,1  77,75,80,78                                             22 1639
        DATA,1  156,154,160,158                                         22 1640
        DATA,1  164,162,193,191                                         22 1641
        DATA,1  189,112,76,79                                           22 1642
        DATA,1  155,159,116,118                                         22 1643
        DATA,1  58,56,60,107                                            22 1644
        DATA,1  103,61,103,104                                          22 1645
        DATA,1  103,101,96,89                                           22 1646
        DATA,1  88,65,62,68                                             22 1647
        DATA,1  66,70,102,255                                           22 1648
        DATA,1  255,255,255,255                                         22 1649
        DATA,1  99,90,82,97                                             22 1650
        DATA,1  83,174,166,177                                          22 1651
        DATA,1  168,86,91,255                                           22 1652
        DATA,1  94,255,171,255                                          22 1653
        DATA,1  22,255,92,69                                            22 1654
        DATA,1  95,71,173,105                                           22 1655
        DATA,1  81,94,167,169                                           22 1656
        DATA,1  67,251,242,245                                          22 1657
        DATA,1  242,245,244,248                                         22 1658
        DATA,1  246,218,212,217                                         22 1659
        DATA,1  207,213,205,208                                         22 1660
        DATA,1  201,206,200,202                                         22 1661
        DATA,1  200,202,195,198                                         22 1662
        DATA,1  0,0,35,41                                               22 1663
        DATA,1  24,28,31,32                                             22 1664
        DATA,1  43,45,48,35                                             22 1665
        DATA,1  37,2,3,8                                                22 1666
        DATA,1  125,147,138,185                                         22 1667
        DATA,1  163,192,187,188                                         22 1668
        DATA,1  186,170,99,63                                           22 1669
        DATA,1  243,215,216,214                                         22 1670
        DATA,1  209,210,203,199                                         22 1671
        DATA,1  198,197                                                 22 1672
        DATA,1  0,0                                                     22 1673
        DATA    0,0,0,0,0,0,0,0                                         22 1674
        BBUNO   4                                                       22 1675
LMNS    DATA,1  120,5,4,0               LINK 0 GRP1                     22 1676
        DATA,1  0,4,5,120               L 1                             22 1677
        DATA,1  7,120,5,4               L 2                             22 1678
        DATA,1  4,5,120,7               L 3                             22 1679
        DATA,1  9,7,120,5               L 4                             22 1680
        DATA,1  5,120,7,9               L 5                             22 1681
        DATA,1  10,9,7,120              L 6                             22 1682
        DATA,1  120,7,9,10              L 7                             22 1683
        DATA,1  6,10,9,7                L 8                             22 1684
        DATA,1  7,9,10,6                L 9                             22 1685
        DATA,1  0,11,9,0                L 10                            22 1686
        DATA,1  0,9,11,0                L 11                            22 1687
        DATA,1  0,11,10,0               L 12                            22 1688
        DATA,1  9,10,11,0               L 13                            22 1689
        DATA,1  121,6,10,9              L 14                            22 1690
        DATA,1  7,9,10,11               L 15                            22 1691
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DATA*1    9*10*6*121                LINK 16 GRP2                    22 1692
DATA*1    122*121*6*10              LINK 17                         22 1693
DATA*1    10*6*121*122              LINK 18                         22 1694
DATA*1    123*122*121*6             LINK 19                         22 1695
DATA*1    6*121*122*123             LINK 20                         22 1696
DATA*1    2*123*122*121             LINK 21                         22 1697
DATA*1    121*122*123*2             LINK 22                         22 1698
DATA*1    3*2*123*122               LINK 23                         22 1699
DATA*1    122*123*2*3               LINK 24                         22 1700
DATA*1    12*3*2*123                LINK 25                         22 1701
DATA*1    123*2*3*12                LINK 26                         22 1702
DATA*1    106*12*3*2                LINK 27                         22 1703
DATA*1    2*3*12*106                LINK 28                         22 1704
DATA*1    105*106*12*3              LINK 29                         22 1705
DATA*1    3*12*106*105              LINK 30                         22 1706
DATA*1    104*105*106*12            LINK 31                         22 1707
DATA*1    12*106*105*104            LINK 32                         22 1708
DATA*1    103*104*105*106           LINK 33                         22 1709
DATA*1    106*105*104*103           LINK 34                         22 1710
DATA*1    17*103*104*105            LINK 35                         22 1711
DATA*1    105*104*103*17            LINK 36                         22 1712
DATA*1    0*17*103*104              LINK 37                         22 1713
DATA*1    0*106*22*0                LINK 38                         22 1714
DATA*1    0*22*106*0                LINK 39                         22 1715
DATA*1    104*103*17*0              LINK 40 GRP3                    22 1716
DATA*1    16*15*13*0                LINK 41                         22 1717
DATA*1    0*13*15*16                LINK 42                         22 1718
DATA*1    14*16*15*13               LINK 43                         22 1719
DATA*1    13*15*16*14               LINK 44                         22 1720
DATA*1    17*14*16*15               LINK 45                         22 1721
DATA*1    15*16*14*17               LINK 46                         22 1722
DATA*1    18*17*14*16               LINK 47                         22 1723
DATA*1    16*14*17*18               LINK 48                         22 1724
DATA*1    1*18*17*14                LINK 49                         22 1725
DATA*1    14*17*18*1                LINK 50                         22 1726
DATA*1    19*1*18*17                LINK 51                         22 1727
DATA*1    17*18*1*19                LINK 52                         22 1728
DATA*1    20*19*1*18                LINK 53                         22 1729
DATA*1    18*1*19*20                LINK 54                         22 1730
DATA*1    21*20*19*1                LINK 55                         22 1731
DATA*1    1*19*20*21                LINK 56                         22 1732
DATA*1    23*21*20*19               LINK 57                         22 1733
DATA*1    19*20*21*23               LINK 58                         22 1734
DATA*1    24*23*21*20               LINK 59                         22 1735
DATA*1    20*21*23*24               LINK 60                         22 1736
DATA*1    27*24*23*21               LINK 61                         22 1737
DATA*1    98*74*75*76               LINK 62 GRP4                    22 1738
DATA*1    74*75*76*77               LINK 63                         22 1739
DATA*1    75*76*77*84               LINK 64                         22 1740
DATA*1    76*77*84*85               LINK 65                         22 1741
DATA*1    77*84*85*86               LINK 66                         22 1742
DATA*1    84*85*86*81               LINK 67                         22 1743
DATA*1    85*86*81*82               LINK 68                         22 1744
DATA*1    86*81*82*83               LINK 69                         22 1745
DATA*1    81*82*83*96               LINK 70                         22 1746
DATA*1    82*83*96*97               LINK 71                         22 1747
DATA*1    83*96*97*0                LINK 72                         22 1748
DATA*1    0*76*72*70                LINK 73                         22 1749
DATA*1    62*73*77*0                LINK 74                         22 1750
DATA*1    0*84*59*63                LINK 75                         22 1751
DATA*1    64*60*85*0                LINK 76                         22 1752
DATA*1    0*86*61*65                LINK 77                         22 1753
DATA*1    65*61*86*0                LINK 78                         22 1754
DATA*1    0*81*87*90                LINK 79                         22 1755
DATA*1    90*87*81*0                LINK 80                         22 1756
DATA*1    0*82*88*91                LINK 81                         22 1757
DATA*1    91*88*82*0                LINK 82                         22 1758
DATA*1    0*83*89*0                 LINK 83                         22 1759
DATA*1    0*89*63*0                 LINK 84                         22 1760
DATA*1    0*96*100*0                LINK 85                         22 1761
DATA*1    0*100*96*0                LINK 86                         22 1762
DATA*1    0*97*99*0                 LINK 87                         22 1763
DATA*1    0*99*97*0                 LINK 88                         22 1764
DATA*1    73*72*25*0                LINK 89                         22 1765
DATA*1    0*25*72*73                LINK 90                         22 1766
DATA*1    59*73*72*25               LINK 91                         22 1767
DATA*1    25*72*73*59               LINK 92                         22 1768
DATA*1    60*59*73*72               93                              22 1769
DATA*1    72*73*59*60               94                              22 1770
DATA*1    61*60*59*73               95                              22 1771
DATA*1    73*59*60*61               96                              22 1772
DATA*1    87*61*60*59               97                              22 1773
DATA*1    59*60*61*87               98                              22 1774
DATA*1    88*87*61*60               99                              22 1775
DATA*1    60*61*87*88               100                             22 1776
DATA*1    89*88*87*61               101                             22 1777
DATA*1    61*87*88*89               102                             22 1778
DATA*1    100*89*88*87              103                             22 1779
DATA*1    87*88*89*100              104                             22 1780
DATA*1    99*100*89*88              105                             22 1781
DATA*1    88*89*100*99              106                             22 1782
DATA*1    0*99*100*89               107                             22 1783
DATA*1    89*100*99*0               108                             22 1784
DATA*1    69*62*73*77               109                             22 1785
DATA*1    67*64*60*85               110                             22 1786
DATA*1    64*65*61*86               111                             22 1787
DATA*1    93*90*87*81               112                             22 1788
DATA*1    94*91*88*82               113                             22 1789
DATA*1    23*98*74*75               115                             22 1790
DATA*1    21*23*24*26               119                             22 1791
DATA*1    71*27*24*23               116                             22 1792
DATA*1    23*24*26*71               117                             22 1793
DATA*1    0*24*98*0                                 118             22 1794
DATA*1    24*26*71*70               119                             22 1795
DATA*1    70*71*27*24               120                             22 1796
DATA*1    0*98*24*0                                 121             22 1797
```

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DATA,1    69,70,71,26                 122                                 22 1798
DATA,1    26,71,70,69                 123                                 22 1799
DATA,1    66,69,70,71                 124                                 22 1800
DATA,1    71,70,69,66                 125 *                               22 1801
DATA,1    54,66,69,70                 126                                 22 1802
DATA,1    70,69,66,54                 127                                 22 1803
DATA,1    55,54,66,69                 128                                 22 1804
DATA,1    69,66,54,55                 129                                 22 1805
DATA,1    56,55,54,66                 130                                 22 1806
 DATA,1    66,54,55,56                  131                                22 1807
DATA,1    0,56,55,54                  132                                 22 1808
DATA,1    54,55,56,0                  133                                 22 1809
DATA,1    0,62,70,0                   134                                 22 1810
DATA,1    69,62,63,64                 135                                 22 1811
DATA,1    62,63,64,65                 136                                 22 1812
DATA,1    63,64,65,90                 137                                 22 1813
DATA,1    64,65,90,91                 138                                 22 1814
DATA,1    65,90,91,0                  139                                 22 1815
DATA,1    0,69,62,73                  140                                 22 1816
DATA,1    59,63,66,0                  141                                 22 1817
DATA,1    54,67,64,6D                 142                                 22 1818
DATA,1    61,65,68,55                 143                                 22 1819
DATA,1    55,68,65,61                 144                                 22 1820
DATA,1    87,90,93,56                 145                                 22 1821
DATA,1    56,93,90,87                 146                                 22 1822
DATA,1    88,91,94,0                  147                                 22 1823
DATA,1    0,94,91,88                  148                                 22 1824
DATA,1    66,67,66,0                  149                                 22 1825
DATA,1    93,68,67,66                 150                                 22 1826
DATA,1    54,67,68,93                 151                                 22 1827
DATA,1    94,93,68,67                 152                                 22 1828
DATA,1    67,68,93,94                 153                                 22 1829
DATA,1    0,94,93,68                  154                                 22 1830
DATA,1    93,94,0,0                   157                                 22 1831
DATA,1    0,71,75,0                                 156                     22 1832
DATA,1    0,0,D,0                     LINK 157                            22 1833
DATA,1    0,54,67,64                  158                                 22 1834
DATA,1    65,68,55,58                 159                                 22 1835
DATA,1    58,55,68,65                 160                                 22 1836
DATA,1    90,93,56,0                  161                                 22 1837
DATA,1    0,56,93,90                  162                                 22 1838
DATA,1    76,72,70,0                  163                                 22 1839
DATA,1    84,59,63,66                 164                                 22 1840
DATA,1    86,61,65,68                 165                                 22 1841
DATA,1    81,87,90,93                 166                                 22 1842
DATA,1    82,88,91,94                 167                                 22 1843
DATA,1    51,58,55,68                 168                                 22 1844
DATA,1    68,55,58,51                 169 GRP6                            22 1845
DATA,1    52,51,58,55                 170                                 22 1846
DATA,1    55,58,51,52                 171                                 22 1847
DATA,1    53,52,51,58                 172                                 22 1848
DATA,1    58,51,52,53                 173                                 22 1849
DATA,1    42,53,52,51                 174                                 22 1850
DATA,1    51,52,53,42                 175                                 22 1851
DATA,1    0,42,53,52                  176                                 22 1852
DATA,1    52,53,42,0                  177                                 22 1853
DATA,1    0,42,41,40                  178                                 22 1854
DATA,1    40,41,42,0                  179                                 22 1855
DATA,1    42,41,40,39                 180                                 22 1856
DATA,1    39,40,41,42                 181                                 22 1857
DATA,1    41,40,39,33                 182                                 22 1858
DATA,1    33,39,40,41                 183                                 22 1859
DATA,1    40,39,33,50                 184                                 22 1860
DATA,1    50,33,39,40                 185                                 22 1861
DATA,1    39,33,50,32                 186                                 22 1862
DATA,1    32,50,33,39                 187                                 22 1863
DATA,1    33,50,32,31                 188                                 22 1864
DATA,1    31,32,50,33                 189                                 22 1865
DATA,1    50,32,31,0                  190                                 22 1866
DATA,1    0,31,32,50                  191                                 22 1867
DATA,1    0,0,0,0                                                         22 1868
DATA,1    0,0,0,0                                                         22 1869
DATA,1    0,0,120,0                                                       22 187D
DATA,1    0,0,120,D                                                       22 1871
DATA,1    0,0,9,0                                                         22 1872
DATA,1    0,0,10,0                                                        22 1873
DATA,1    0,0,11,0                                                        22 1874
DATA,1    0,0,11,0                                                        22 1875
DATA,1    0,0,121,0                                                       22 1876
DATA,1    0,0,121,0                                                       22 1877
DATA,1    0,0,123,0                                                       22 1878
DATA,1    0,0,12,0                                                        22 1879
DATA,1    0,0,1E,0                                                        22 1880
DATA,1    0,0,15,16                                                       22 1881
DATA,1    0,0,15,13                                                       22 1882
DATA,1    0,0,17,103                                                      22 1883
DATA,1    0,0,76,72                                                       22 1884
DATA,1    0,0,84,59                                                       22 1885
DATA,1    0,0,92,58                                                       22 1886
DATA,1    0,0,97,99                                                       22 1887
DATA,1    0,0,89,63                                                       22 1888
DATA,1    0,0,100,96                                                      22 1889
DATA,1    82,88,91,0                                                      22 1890
DATA,1    0,0,69,62                                                       22 1891
DATA,1    0,0,54,67                                                       22 1892
DATA,1    0,0,53,0                                                        22 1893
DATA,1    0,0,42,41                                                       22 1894
DATA,1    39,40,41,0                                                      22 1895
DATA,1    0,0,40,0                                                        22 1896
DATA,1    0,0,0,41                                                        22 1897
DATA,1    32,50,33,0                                                      22 1898
DATA,1    29,29,31,0                                                      22 1899
DATA,1    0,0,31,32                                                       22 1900
DATA,1    0,0,31,29                                                       22 1901
DATA      0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0  22 1902
DATA      0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0  22 1903
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```
         BOUND   4                                                       22 1934
GC2LST   RES     0                                                       22 1935
         DATA,1  0,16,40,62,116,169,0,0                                  22 1936
         SPACE   2                                                       22 1937
         BOUND   4                                                       22 1938
SPALT    OSECT   0                                                       22 1939
JALPH    DATA,1  100,100,100,100,100,100,100,100,100,100                 22 1910
         DATA,1  100,100,100,100,100,100,100,100,100,100                 22 1911
         DATA,1  100,100,100,100,100,100,100,100,100,100                 22 1912
         DATA,1  100,100,100,100,100,100,100,100,100,100                 22 1913
         DATA,1  100,100,100,100,100,100,100,100,100,100                 22 1914
         DATA,1  100,100,100,100,100,100,100,100,100,100                 22 1915
         DATA,1  100,100,100,100,100,100,100,100,100,100                 22 1916
         DATA,1  100,100,100,100,100,100,100,100,100,100                 22 1917
         DATA,1  100,100,100,100,100,100,100,100,100,100                 22 1918
         DATA,1  100,114,114,114,114,114,114,114,114,114                 22 1919
         DATA,1  114,114,114,114,114,114,114,114,114,100                 22 1920
         DATA,1  100,100,100,100,100,100,100,100,100,100                 22 1921
          DATA,1 100,100,100,100,100,100,100,100,100,100                 22 1922
          DATA,1 100,100,100,100,100,100,100,100,100,100                 22 1923
          DATA,1 100,100,100,100,100,100,100,100,100,100                 22 1924
         DATA,1  100,100,100,100,100,100,100,100,100,100                 22 1925
          DATA,1 100,100,100,100,100,100,100,100,100,100                 22 1926
          DATA,1 100,100,100,100,100,100,100,100,100,100                 22 1927
          DATA,1 100,100,100,100,100,100,100,100,100,100                 22 1928
          DATA,1 100,100,100,100,100,100,100,100,100,100                 22 1929
          DATA,1 100,100,100,100,100,100,100,100,100,100                 22 1930
          DATA,1 100,100,100,100,100,100,100,100,100,100                 22 1931
          DATA,1 100,100,100,100,100,100,100,100,100,100                 22 1932
          DATA,1 100,100,100,100,100,100,100,100,100,100                 22 1933
          DATA,1 100,100,100,100,100,100,100,100,100,100                 22 1934
          DATA,1 100,100,100,100,100,100,100,100,100,100                 22 1935
         DATA,1  100,100,100,100                                         22 1936
         BOUND   4                                                       22 1937
G2DAT    DSECT   0                                                       22 1938
GCNT     DATA,1  4,5,120,7,9,10,11 GRP1                                  22 1939
         DATA,1  6,121,122,123,2,3,12,106,105,104,103,22 GRP2            22 1940
         DATA,1  13,15,16,14,17,18,1,19,20,21,23 GRP3                    22 1941
         DATA,1  98,74,75,76,77,84,85,86,81,82,83,96,97 GRP4             22 1942
         DATA,1  25,72,73,59,60,61,87,88,89,100,99                       22 1943
         DATA,1  24,27,26,71,70,69,66,54,55,56,62 GRP5                   22 1944
         DATA,1  63,64,65,90,91,67,68,93,94                              22 1945
         DATA,1  58,51,52,53,42,41,40,39,33,50,32,31 GRP6                22 1946
         DATA,1  0,0                                                     22 1947
         DATA    0,0,0,0,0,0,0,0                                         22 1948
         BOUND   4                                                       22 1949
GCNTS1   DATA,1  0,7,19,30,54,74                                         22 1950
         BOUND   4                                                       22 1951
GRPNB    DATA,1  1,2,3,4,5,6                                             22 1952
         BOUND   4                                                       22 1953
NCIGRP   DATA,1  7,12,11,24,20,12                                        22 1954
         BOUND   4                                                       22 1955
N@GCL    DATA,1  16,24,22,54,53,23   NUMBER OF 2GC LINKS/GROUP           22 1956
         DATA,1  0,0                                                     22 1957
NICIGP   RES     0                                                       22 1958
         DATA,1  4,3,2,15,9,7                                            22 1959
         BOUND   4                                                       22 1960
NCCR     DATA    124                                                     22 1961
*   NBL = NL = NUMBER OF GC-2 LINKS  (IN COMMON)                         22 1962
NBL      DATA    230                                                     22 1963
NGRPS    DATA    6                                                       22 1964
MISCL    DSECT   0                                                       22 1965
CIC1NH    DATA   0,0,0,0,0,0,0,0                                         22 1966
LSW       DATA   0,0,0                                                   22 1967
CYCREF   DATA,1  0,1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,0,0,0         22 1968
         BOUND   4                                                       22 1969
INCG     DATA,1  120,9,10,11          GROUP 1                            22 1970
         DATA,1  121,123,12           GROUP 2                            22 1971
         DATA,1  13,17                GROUP 3                            22 1972
         DATA,1  76,77,84,85,82,97,72,73,59,61,87,88 GROUP 4             22 1973
         DATA,1  89,100,99                                               22 1974
         DATA,1  70,91,69,66,54,55,68,93,94 GROUP 5                      22 1975
         DATA,1  53,42,41,40,33,50,31 GROUP 6                            22 1976
          DATA   0,0,0,0,0,0,0,0,0,0                                     22 1977
         DATA    0,0,0,0,0,0,0,0,0,0                                     22 1978
         BOUND   4                                                       22 1979
         DATA,1  0,4,7,9,24,33,0,0                                       22 1980
PATNG    DSECT   0                                                       22 1981
ABLSTRT  RES     0                                                       22 1982
         DATA,1  1,3,0,0              CONT. 1                            22 1983
         DATA,1  1,6,0,0              2                                  22 1984
         DATA,1  1,4,0,0              3                                  22 1985
         DATA,1  1,4,0,0              4                                  22 1986
         DATA,1  1,4,0,0              5                                  22 1987
         DATA,1  1,2,0,0              6                                  22 1988
         DATA,1  1,4,0,0              7                                  22 1989
         DATA,1  0,0,0,0              NONEXIST 8                         22 1990
         DATA,1  15,7,13,0            9                                  22 1991
         DATA,1  1,7,4,0              10                                 22 1992
         DATA,1  1,4,5,0              11                                 22 1993
         DATA,1  1,3,0,0              12                                 22 1994
         DATA,1  1,4,0,0              13                                 22 1995
         DATA,1  1,5,1,0              14                                 22 1996
         DATA,1  1,6,4,0              15                                 22 1997
         DATA,1  1,7,1,0              16                                 22 1998
         DATA,1  1,5,7,0              17                                 22 1999
         DATA,1  1,3,0,0              18                                 22 2000
         DATA,1  1,3,0,0              19                                 22 2001
         DATA,1  1,13,0,0             20                                 22 2002
         DATA,1  1,5,0,0              21                                 22 2003
         DATA,1  1,3,0,0              22                                 22 2004
         DATA,1  1,6,4,0              23                                 22 2005
         DATA,1  15,8,1,0                                                22 2006
         DATA,1  1,2,0,0              25                                 22 2007
         DATA,1  15,11,0,0            26                                 22 2008
         DATA,1  1,6,0,0              27                                 22 2009
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                DATA,1     7,4,0,0                 28                              22 2010
                DATA,1     1,7,1,0                 29                              22 2011
                DATA,1     1,4,0,0                 30                              22 2012
                DATA,1     1,11,4,0                31                              22 2013
                DATA,1     1,4,0,0                 32                              22 2014
                DATA,1     1,5,3,0                 33                              22 2015
                DATA,1     1,5,0,0                 34                              22 2016
                DATA,1     1,3,0,0                 35                              22 2017
                DATA,1     1,5,0,0                 36                              22 2018
                DATA,1     1,7,10,0                37                              22 2019
                DATA,1     1,4,6,0                 38                              22 2020
                DATA,1     1,5,1,0                 39                              22 2021
                DATA,1     1,4,0,0                 40                              22 2022
                DATA,1     1,4,0,0                 41                              22 2023
                DATA,1     7,4,1,0                 42                              22 2024
                DATA,1     1,3,0,0                 43                              22 2025
                DATA,1     1,3,0,0                 44                              22 2026
                DATA,1     1,4,0,0                 45                              22 2027
                DATA,1     1,3,0,0                 46                              22 2028
                DATA,1     1,6,0,0                 47                              22 2029
                DATA,1     1,3,0,0                 48                              22 2030
                DATA,1     1,3,0,0                 49                              22 2031
                DATA,1     1,3,0,0                 50                              22 2032
                DATA,1     1,3,0,0                 51                              22 2033
                DATA,1     1,3,0,0                 52                              22 2034
                DATA,1     1,7,1,0                 53                              22 2035
                DATA,1     1,6,1,0                 54                              22 2036
                DATA,1     1,5,0,0                 55                              22 2037
                DATA,1     1,4,0,0                 56                              22 2038
                DATA,1     1,3,0,0                 57                              22 2039
                DATA,1     1,2,0,0                 58                              22 2040
                DATA,1     1,5,0,0                 59                              22 2041
                DATA,1     1,6,0,0                 60                              22 2042
                DATA,1     1,5,0,0                 61                              22 2043
                DATA,1     1,4,0,0                 62                              22 2044
                DATA,1     1,5,0,0                 63                              22 2045
                DATA,1     1,5,0,0                 64                              22 2046
                DATA,1     1,4,7,0                 65                              22 2047
                DATA,1     1,8,1,0                 66                              22 2048
                DATA,1     1,5,0,0                 67                              22 2049
                DATA,1     1,6,0,0                 68                              22 2050
                DATA,1     1,6,0,0                 69                              22 2051
                DATA,1     1,6,0,0                 70                              22 2052
                DATA,1     13,5,1,0                71                              22 2053
                DATA,1     1,4,0,0                 72                              22 2054
                DATA,1     1,4,0,0                 73                              22 2055
                DATA,1     1,5,0,0                 74                              22 2056
                DATA,1     1,6,4,0                 75                              22 2057
                DATA,1     1,5,0,0                 76                              22 2058
                DATA,1     1,4,0,0                 77                              22 2059
                DATA,1     0,0,0,0                 78 NONEXIST                     22 2060
                DATA,1     0,0,0,0                 79 NONEXIST                     22 2061
                DATA,1     0,0,0,0                 80 NONEXIST                     22 2062
                DATA,1     1,4,0,0                 81                              22 2063
                DATA,1     1,4,0,0                 82                              22 2064
                DATA,1     1,4,0,0                 83                              22 2065
                DATA,1     1,4,0,0                 84                              22 2066
                DATA,1     1,5,0,0                 85                              22 2067
                DATA,1     5,1,0,0                 86                              22 2068
                DATA,1     1,4,0,0                 87                              22 2069
                DATA,1     1,4,4,0                 88                              22 2070
                DATA,1     1,3,0,0                 89                              22 2071
                DATA,1     1,5,0,0                 90                              22 2072
                DATA,1     1,4,7,0                 91                              22 2073
                DATA,1     0,0,0,0                 92 NONEXIST                     22 2074
                DATA,1     1,4,7,0                 93                              22 2075
                DATA,1     1,4,0,0                 94                              22 2076
                DATA,1     0,0,0,0                 95 NONEXIST                     22 2077
                DATA,1     1,4,0,0                 96                              22 2078
                DATA,1     1,5,0,0                 97                              22 2079
                DATA,1     1,4,0,0                 98                              22 2080
                DATA,1     1,4,6,0                 99                              22 2081
                DATA,1     1,3,0,0                 100                             22 2082
                DATA,1     0,0,0,0                 101 NONEXIST                    22 2083
                DATA,1     0,0,0,0                 102 NONEXIST                    22 2084
                DATA,1     1,5,0,0                 103                             22 2085
                DATA,1     1,5,0,0                 104                             22 2086
                DATA,1     1,4,0,0                 105                             22 2087
                DATA,1     15,9,13,0               106                             22 2088
                DATA,1     0,0,0,0                 107 NONEXIST                    22 2089
                DATA,1     0,0,0,0                 108 NONEXIST                    22 2090
                DATA,1     1,4,0,0                 109                             22 2091
                DATA,1     1,6,1,0                 110                             22 2092
                DATA,1     1,6,0,0                 111                             22 2093
                DATA,1     1,6,0,0                 112                             22 2094
                DATA,1     1,3,0,0                 113                             22 2095
                DATA,1     1,4,0,0                 114                             22 2096
                DATA,1     1,4,0,0                 115                             22 2097
                DATA,1     1,4,0,0                 116                             22 2098
                DATA,1     1,3,0,0                 117                             22 2099
                DATA,1     1,4,0,0                 118                             22 2100
                DATA,1     1,3,0,0                 119                             22 2101
                DATA,1     1,4,0,0                 120                             22 2102
                DATA,1     15,8,15,0               121                             22 2103
                DATA,1     1,2,0,0                 122                             22 2104
                DATA,1     1,3,0,0                 123                             22 2105
                DATA,1     0,0,0,0                 124 NONEXIST                    22 2106
ABCEND          RES        0                                                       22 2107
                DATA,1     2,4,0,0                 CONT 1                          22 2108
                DATA,1     5,8,0,0                 2                               22 2109
                DATA,1     2,5,0,0                 3                               22 2110
                DATA,1     2,5,0,0                 4                               22 2111
                DATA,1     3,6,0,0                 5                               22 2112
                DATA,1     1,2,0,0                 6                               22 2113
                DATA,1     3,6,0,0                 7                               22 2114
                DATA,1     0,0,0,0                 8 NONEXIST                      22 2115
```

```
DATA,1    5,10,3,0          9                                  22 2116
DATA,1     3,9,6,0          10                                 22 2117
DATA,1    3,6,6,D           11                                 22 2118
DATA,1    2,4,D,0           12                                 22 2119
DATA,1    3,6,D,0           13                                 22 2120
DATA,1    4,6,2,0           14                                 22 2121
DATA,1    5,7,5,C           15                                 22 2122
DATA,1    6,9,2,0           16                                 22 2123
DATA,1    4,6,9,C           17                                 22 2124
DATA,1    2,4,D,0           18                                 22 2125
DATA,1    2,4,D,C           19                                 22 2126
DATA,1    4,15,0,0          20                                 22 2127
DATA,1    3,7,D,C           21                                 22 2128
DATA,1    2,4,D,0           22                                 22 2129
DATA,1    3,8,5,0           23                                 22 2130
DATA,1    7,11,3,0          24                                 22 2131
DATA,1     1,2,D,C          25                                 22 2132
DATA,1    10,14,C,0         26                                 22 2133
DATA,1    5,16,D,0          27                                 22 2134
DATA,1     3,6,D,0          28                                 22 2135
DATA,1     5,9,3,D          29                                 22 2136
DATA,1     3,6,D,0          30                                 22 2137
DATA,1     6,15,9,0         31                                 22 2138
DATA,1     3,8,D,0          32                                 22 2139
DATA,1     2,6,4,C          33                                 22 2140
DATA,1     3,7,D,C          34                                 22 2141
DATA,1     2,4,D,0          35                                 22 2142
DATA,1     4,8,D,C          36                                 22 2143
DATA,1    6,8,16,0          37                                 22 2144
DATA,1     3,5,8,C          38                                 22 2145
DATA,1     4,6,2,C          39                                 22 2146
DATA,1     3,6,D,0          40                                 22 2147
DATA,1     3,6,D,C          41                                 22 2148
DATA,1     3,5,3,0          42                                 22 2149
DATA,1     2,4,D,0          43                                 22 2150
DATA,1     2,4,D,0          44                                 22 2151
DATA,1     3,5,D,0          45                                 22 2152
DATA,1     2,4,D,0          46                                 22 2153
DATA,1     4,8,D,0          47                                 22 2154
DATA,1     2,4,D,0          48                                 22 2155
DATA,1     2,4,D,0          49                                 22 2156
DATA,1     2,4,D,C          50                                 22 2157
DATA,1     2,4,D,0          51                                 22 2158
DATA,1     2,4,D,0          52                                 22 2159
DATA,1     6,8,4,0          53                                 22 2160
DATA,1     5,8,3,0          54                                 22 2161
DATA,1     3,7,D,0          55                                 22 2162
DATA,1     3,6,D,0          56                                 22 2163
DATA,1     2,4,D,0          57                                 22 2164
DATA,1     1,2,D,C          58                                 22 2165
DATA,1     4,7,D,0          59                                 22 2166
DATA,1     5,8,D,0          60                                 22 2167
DATA,1    4,8,D,0           61                                 22 2168
DATA,1     3,6,D,0          62                                 22 2169
DATA,1     4,8,D,0          63                                 22 2170
DATA,1     4,8,D,0          64                                 22 2171
DATA,1    3,6,9,0           65                                 22 2172
DATA,1    5,16,3,0          66                                 22 2173
DATA,1     4,8,D,0          67                                 22 2174
DATA,1     5,8,D,C          68                                 22 2175
DATA,1     3,8,D,0          69                                 22 2176
DATA,1     3,8,D,0          70                                 22 2177
DATA,1    4,11,4,0          71                                 22 2178
DATA,1     3,5,D,0          72                                 22 2179
DATA,1     3,5,D,C          73                                 22 2180
DATA,1     4,8,D,0          74                                 22 2181
DATA,1     3,8,5,0          75                                 22 2182
DATA,1     4,8,D,0          76                                 22 2183
DATA,1     3,6,D,0          77                                 22 2184
DATA,1     0,0,D,0          78 NONEXIST                        22 2185
DATA,1     0,0,D,D          79 NONEXIST                        22 2186
DATA,1     0,0,D,C          80 NONEXIST                        22 2187
DATA,1     3,6,D,0          81                                 22 2188
DATA,1     3,6,D,C          82                                 22 2189
DATA,1     3,6,D,0          83                                 22 2190
DATA,1     3,6,D,0          84                                 22 2191
DATA,1     4,8,D,0          85                                 22 2192
DATA,1     7,4,D,0          86                                 22 2193
DATA,1     3,5,D,0          87                                 22 2194
DATA,1     3,8,6,0          88                                 22 2195
DATA,1     2,5,D,0          89                                 22 2196
DATA,1     4,8,D,0          90                                 22 2197
DATA,1    3,6,9,0           91                                 22 2198
DATA,1     D,0,D,D          92 NONEXIST                        22 2199
DATA,1     3,6,9,0          93                                 22 2200
DATA,1     3,6,D,0          94                                 22 2201
DATA,1     D,0,D,C          95 NONEXIST                        22 2202
DATA,1     3,6,D,0          96                                 22 2203
DATA,1     4,7,D,D          97                                 22 2204
DATA,1     3,6,D,0          98                                 22 2205
DATA,1     3,9,9,0          99                                 22 2206
DATA,1     2,4,D,C          100                                22 2207
DATA,1     0,0,D,0          101 NONEXIST                       22 2208
DATA,1     D,0,D,C          102 NONEXIST                       22 2209
DATA,1    4,7,D,0           103                                22 2210
DATA,1     4,8,D,0          104                                22 2211
DATA,1     3,6,D,0          105                                22 2212
DATA,1    6,12,14,0         106                                22 2213
DATA,1     D,0,D,D          107 NONEXIST                       22 2214
DATA,1     D,0,D,0          108 NONEXIST                       22 2215
DATA,1     2,7,D,0          109                                22 2216
DATA,1     5,8,3,0          110                                22 2217
DATA,1     4,8,D,0          111                                22 2218
DATA,1     4,8,D,0          112                                22 2219
DATA,1     2,4,D,0          113                                22 2220
DATA,1     3,6,D,0          114                                22 2221
DATA,1     3,6,D,0          115                                22 2222
```

```
                DATA,1      3,6,0,0             116                         22 2223
                DATA,1      2,4,0,0             117                         22 2224
                DATA,1      3,6,0,0             118                         22 2225
                DATA,1      2,4,0,0             119                         22 2226
                DATA,1      3,6,0,0             120                         22 2227
                DATA,1      7,12,5,0            121                         22 2228
                DATA,1      1,2,0,0             122                         22 2229
                DATA,1      2,4,0,0             123                         22 2230
                DATA,1      0,0,0,0             124 NONEXIST                22 2231
BIAS            RES         NCR/4                                           22 2232
DELT            RES         NCR/4                                           22 2233
SMTABC          RES         4*(NCR/4)                                       22 2234
SABC            RES         4*(NCR/4)                                       22 2235
SUMABC          RES         NCR/4                                           22 2236
*                                                                           22 2237
                BOUND       8                                               22 2238
BLKIFC          DSECT       0                                               22 2239
INTF            RES         5                                               22 2240
*     NUMBER OF INTERFACE NODE PAIRS                                        22 2241
NINTFC          DATA        9,2,1,1,1                                       22 2242
NGRPI           DATA        1,10,12,13,14                                   22 2243
*     INTERFACE NODE NUMBERS                                                22 2244
INTN1           DATA        73,59,60,61,87,88,72,75,98,23,23,103,10,55      22 2245
INTN2           DATA        62,63,64,65,90,91,70,71,24,24,98,17,6,58        22 2246
*     INTERFACE LINK NUMBERS                                                22 2247
LINKN           DATA        110,0,0,165,111,0,112,166,113,167,114,168       22 2248
                DATA        0,164,157,0,122,135,62,119,0,116,39,*1          22 2249
                DATA        15,17,169,170                                   22 2250
ADTMF           EQU         ADVINH+1                                        22 2251
CICEF           EQU         CICBYP+1                                        22 2252
CICSF           EQU         CICTBF+1                                        22 2253
CMALF           EQU         CICTF+1                                         22 2254
FSETCF          EQU         CMABG+1                                         22 2255
SPLCMG          EQU         SEMMSK+1                                        22 2256
TRANSF          EQU         STBYD+1                                         22 2257
                END                                                         22 2258
```

2.6.88 ROUTINE MACRO

```
      MACR8

     *   MACR8                                                                  56     1
         SUBR8UTINE MACR8                                                       56     2
         DIMENSION LEV5SF(4),LEV5S(4)                                           56     3
         COMMON /BLK1/ LEV5SF,IRADRD                                            56     4
         COMMON /HBLOSR/ SURC8N(124),HLDSPL(4),HLD8FF(4),IGATEM,IGBTEM          56     5
         INTEGER SURC8N,HLDSPL,HLD8FF                                           56     6
         INTEGER SHTFLG,PV,PS                                                   56     7
         DIMENSION ISB(8,8),MDATA(2,5),NCYCLE(8),CYC(8,5),INTF(5),INTRS(45)     56     8
         COMMON /BLK/ ISB,NCYCLE,CYC,IS8(8)                                     56     9
         COMMON/BLK2/INTRS                                                      56    10
         COMMON/BLK3/ PV(262),PS(262)                                           56    11
         COMMON/BLK4/ DATA(144,8),NL                                            56    12
         COMMON /BLKLV5/ LEVLSA,SRTN5,END5,END51,MINCT5,MIN5F,8PTIME,8PTIN      56    13
         INTEGER SRTN5,END5,END51,8PTIME,8PTIN                                  56    14
         COMMON /BLK7G2/ LEV58(4),CYCL9(8),INF9(5),NSUB8,IRE8PT                 56    15
         COMMON /BLK89/ ITSAVE,H8LDF,CP(275),CS(275)                            56    16
C        ADDITIONAL CARDS FOR INTERFACING                                       56    17
         COMMON/BLK1F/INTFLG                                                    56    18
         LOGICAL STRF(4), STR1, STR2, STR3, STR4, TRINT                         56    19
         COMMON /BLK5/ IPRD, INT, ITRDLY, JLIM(4)                               56    20
         EQUIVALENCE  (STRF(1), STR1), (STRF(2), STR2), (STRF(3), STR3),        56    21
        1  (STRF(4), STR4)                                                      56    22
         DATA LEV58/4*0/                                                        56    23
         DATA NSUB8/0/                                                          56    24
         DATA CYCL8/8*0./                                                       56    25
         DATA INF8/5*0/                                                         56    26
         DATA PV,PS/262*0,262*0/                                                56    27
         DATA IARG/0/,ICOUNT/0/,IPASS/0/                                        56    28
         IF(IPASS.NE.0) GO TO 200                                               56    29
         IRE8PT = 0                                                             56    30
         IF(END5.NE.0) IPASS=1                                                  56    31
         INTFLG = 0                                                             56    32
C                                                                               56    33
  105 CONTINUE                                                                  56    34
         CALL RTNS                                                              56    35
         IF(ICOUNT.EW.0) GO TO 200                                              56    36
         CALL SEGL8D(3)                                                         56    37
         CALL PREDICT                                                           56    38
         IF(IPASS.NE.0) GO TO 200                                               56    39
         IF(ITRDLY .NE. 0)GOTO 556                                              56    40
         CALL FR8DE(K)                                                          56    41
         IF(K.EQ.0) GO TO 200                                                   56    42
         DO 110  I = 1, 4                                                       56    43
         LEV5S(I) = 0                                                           56    44
  110 CONTINUE                                                                  56    45
         J=0                                                                    56    46
         DO 100 I=1,4                                                           56    47
         STRF(I) = LEV5SF(I) .NE. 0                                             56    48
         IF(LEV5SF(I))5,100,5                                                   56    49
    5    CONTINUE                                                              56    50
         J = J + 1                                                              56    51
         LEV5S(J) = I                                                           56    52
         IF(LEV5S(J).NE.LEV58(J)) IRE8PT=1                                      56    53
         LEV58(J)=LEV5S(J)                                                      56    54
  100 CONTINUE                                                                  56    55
         IF(LEV58(1).EQ.0) GO TO 200                                            56    56
         IF(IRADRD.EW.1) IRE8PT =1                                              56    57
C                                                                               56    58
C   ADDITIONAL CARDS FOR INTERFACE                                              56    59


C                                                                               56    60
C          CHECK FOR ADJACENT SECTIONS REQUIRING INTERFACING                    56    61
         TRINT = STR2 .OR. STR3                                                 56    62
         IF (TRINT)  INTFLG = 1                                                 56    63
         CALL SEGL8D(2)                                                         56    64
         CALL RTSND(LEV5S,IIJJ)                                                 56    65
         IF(IRE8PT.EW.0) GO TO 200                                              56    66
         CALL SEGL8D(1)                                                         56    67
         CALL LSTSOS(IIJJ)                                                      56    68
         ITRDLY=1                                                               56    69
C                                                                               56    70
C    ADDITIONAL CARD FOR INTERFACE                                              56    71
         CALL SEGL8AD(4)                                                        56    72
         IF(INTFLG .NE. 1)GOTO 500                                              56    73
C CALL INTFC IF INTERFACING GROUPS REQD                                         56    74
         CALL INTFC                                                             56    75
  500 CONTINUE                                                                  56    76
         CALL TRAPAR                                                            56    77
C        TURN ON TRANSITION FLAGS                                               56    78
         CALL TRFLG                                                             56    79
*        IRADRD = 0                                                             56    80
  200 CONTINUE                                                                  56    81
         ICOUNT = 1                                                             56    82
         RETURN                                                                 56    83
  556    ITRDLY=0                                                               56    84
         GOTO 200                                                               56    85
             END                                                                56    86
```

2.6.89 SUBROUTINE FMODE

ROUTINE: FMODE

```
C   *   FMODE                                                          58    1
      SUBROUTINE FMODE(K)                                              58    2
      COMMON /BLK10/  CHSET       ,  HBUFL       ,  IGPI       ,      58    3
     * MNUMF         ,  NBMCH      ,  NCW22       ,  NC*D2      ,      58    4
     * NCWRD         ,  NMANP      ,  NMCTL       ,  NMLNK      ,      58    5
     * NMSCT         ,  NMVED      ,  NPATB       ,  NPB4       ,      58    6
     * NRESP         ,  NSTM1      ,  TBSIZ       ,  TBYTE      ,      58    7
     * CS            ,  DS         ,  FS          ,  NS         ,      58    8
     * QS            ,  RS         ,  SS          ,  SCS               58    9
      COMMON /BLK25/ AHCC(138), CNMAL(17), CMTAB(258),                 58   10
     * DTTAB(258)  ,  DIS(17)     ,  DMALF(17)   ,  DMODE      ,      58   11
     * FLTAB(800)  ,  HRF         ,  MODES       ,  NAI        ,      58   12
     * NBFAL, SBAM(69), SECFC(4), SCDFC(4), VBL(138)                   58   13
      K=0                                                              58   14
      DO 10 I=1,NMSCT                                                  58   15
      CALL GETBY(UMODE,I,ICD)                                          58   16
      IF(ICD.NE.3) GO TO 10                                            58   17
      K=1                                                              58   18
      GO TO 20                                                         58   19
   10 CONTINUE                                                         58   20
   20 CONTINUE                                                         58   21
      RETURN                                                           58   22
      END                                                              58   23
```

2.6.90 SUBROUTINE OUTTBF

```
ROUTINE: OUTTBF

*   *   OUTTBF                                                          24    1
*    SUBROUTINE TO OUTPUT GCOS TAPE BUFFER                              24    2
         DEF       OUTTBF                                              24    3
         REF       WRF                                                 24    4
         REF       SSETUP1                                             24    5
OUTTBF   BAL,6     SSETUP1                                             24    6
         GEN,8,2+  1,TBUFF                                             24    7
         STW,15    PTMP1                                               24    8
         LW,6      WRF                                                 24    9
         BEZ       RTN                                                 24   10
          RD,0     0                                                   24   11
         BCS,4     RTN          *EXIT IF SENSE SWITCH 2 SET            24   12
*     SET UP OUTPUT BUFFER ADDRESSING                                   24   13
         LA,15     *TBUFF                                              24   14
         LI,1      1                                                   24   15
         STM,15    TIMES,I                                             24   16
         SAS,15    2                                                   24   17
         STW,13    WRITAP                                              24   18
         STB,1     WRITAP                                              24   19
         LW,10     RECDING      WAS A RECORD BEEN WRITTEN              24   20
         BEZ       CALTP                                               24   21
         LI,10     0                                                   24   22
         STW,10    RECDING                                             24   23
CALTP    BAL,15    TSTAPE                                              24   24
         B         RTN                                                 24   25
      LI,0         DA(WRITAP)                                          24   26
         SIB,0     X'E1'                                               24   27
         MTW,1     RECDING                                             24   28
         LI,2      0                                                   24   29
         AI,2      1                                                   24   30
      CI,2         100                                                 24   31
      BG           RTN                                                 24   32
         TIB,13    X'E1'                                               24   33
         BCS,8     *+4                                                 24   34
         LI,0      DA(WRIEOF)                                          24   35
         SIB,0     X'E1'                                               24   36
RTN      RES       0                                                   24   37
         B         *PTMP1                                              24   38
         BOUND     8                                                   24   39
TIMES    GEN,8,7,17 X'10',0,0                                          24   40
         BOUND     8                                                   24   41
WRITAP   RES       1                                                   24   42
         GEN,16,16 0,5536                                              24   43
WRIEOF   GEN,8,24  X'73',0                                             24   44
         DATA      0                                                   24   45
RECDING  DATA      0                                                   24   46
TSTAPE   TIB,13    X'E1'                                               24   47
         BCR,12    TDVTP                                               24   48
         BCS,8     *+3                                                 24   49
         LI,7      5                                                   24   50
         B         *+3                                                 24   51
      BCS,4        *-2                                                 24   52
         LI,7      2                                                   24   53
TPERR     MI,7     5                                                   24   54
          AI,7     ERRMESS                                             24   55
          STW,7    TYPEBUT+2                                           24   56
          CAL1,2   TYPEBUT                                             24   57
          B        *15                                                 24   58
TDVTP     RES      0                                                   24   59


          MTW,1    15                                                  24   60
          B        *15                                                 24   61
PTMP1     DATA     0                                                   24   62
TBUFF     RES      1                                                   24   63
MKTIB     DATA,1   0,X'60',X'60',X'02'                                 24   64
ERRMESS   TEXTC    '  VS8 TAPE MANUAL  '                               24   65
          TEXTC    '  VS8 TAPE INT PEND'                               24   66
          TEXTC    '  VS8 TAPE BUSY    '                               24   67
          TEXTC    '  VS8 TAPE UNSU END'                               24   68
          TEXTC    '  VS8 TAPE DATA OVR'                               24   69
          TEXTC    '  VS8 TAPE NOT RECG'                               24   70
TYPEBUT   DATA     X'02000000'                                         24   71
          DATA     X'82000000'                                         24   72
          DATA     0                                                   24   73
MASK1     DATA     X'40000000'                                         24   74
          END                                                          24   75
```

2.6.91 ROUTINE RTN5

```
ROUTINE:  RTN5    COMBINES RTN5 AND RTNFT

C  *   RTN5    COMBINES RTN5 AND RTNFT                                          59    1
C  *   SUBROUTINE RTN5                                                          59    2
      COMMON /RTT3/ TBUFF(1384),TBSIZE                                         59    3
      INTEGER TBUFF,TBSIZE                                                     59    4
      COMMON /BLK67/ M1, NDLNK(69), TT3,                                       59    5
     * TT7                                                                     59    6
      COMMON /BLK11/  MSB15(32)    ,  IG15(64)    ,  KW          ,           59    7
     2 LNKDI(64),NDBL(69),NBNCS,NBCNT(4),                                     59    8
     * TBSU                                                                    59    9
      COMMON /BLK13/  DWL(259)     ,  DWLP(17)    ,  E8DC        ,           59   10
     1 FTAB, FTBND, MBEIF(69)                                                 59   11
      COMMON /BLK15/  CMSET        ,  MBUFL       ,  IGPI        ,           59   12
     * MNUMF        ,  NBMCM       ,  NCM22       ,  NCMD2       ,           59   13
     * NCARD        ,  NMANP       ,  NMCTL       ,  NMLNK       ,           59   14
     * NMSCT        ,  NMVED       ,  NPATB       ,  NPB4        ,           59   15
     * NMESP        ,  NSTM1       ,  TBSIZ       ,  TBYTE       ,           59   16
     * CS           ,  DS          ,  FS          ,  NS          ,           59   17
     * GS           ,  HS          ,  SS          ,  SCS                     59   18
      COMMON /BLK19/ CC2(129), DFAIL(69), DBF(17),                             59   19
     * MI(31)       ,  RAMBC(258)  ,  RAMSP(258)  ,  RTC         ,           59   20
     * ISTRT(516)                                                            59   21
      COMMON /BLK19P/ CC2P(129),RAMBCP(258),RAMSPP(258)                        59   22
      COMMON /BLK24/ AMIST(138), CNDIS, DCF,                                   59   23
     * DBM          ,  FMTBD       ,  FSTFL       ,  HLIDF       ,           59   24
     * HLIDT(96)    ,  NHDAY       ,  PRCBD       ,  PTN(745)    ,           59   25
     * SMTFL,SRDIS,THRSH,VMIST(138)                                           59   26
      COMMON /BLK25/ AMCC(134), CMMAL(17), CMTAB(258),                         59   27
     * DITAB(258)   ,  DIS(17)     ,  DMALF(17)   ,  DMBDE       ,           59   28
     * FLTAB(800)   ,  MRF         ,  MBDES       ,  NAI         ,           59   29
     * NBFAL, SBAM(69), SECFC(4), SCDFC(4), V9L(138)                          59   30
      COMMON /BLKLVS/ LEVL5A,SRTNS,END5,END51,MINCTS,MINBF,MPTIME,MPTIN        59   31
      INTEGER SRTNS,ENDS,END51,MPTIME,MPTIN                                    59   32
      DATA TBSIZE/1384/                                                        59   33
      DATA LL1,KV1/76736,MS/                                                   59   34
      CALL TBDAY(TBUFF)                                                        59   35
      ISIX=9                                                                   59   36
      DO 10 I=5,TMSIZE                                                         59   37
   10 TBUFF(I)=0                                                               59   38
      I=NMVED+1                                                                59   39
   20 CONTINUE                                                                 59   40
C    MAIN DETECTOR LOOP                                                       59   41
      IDET=0                                                                   59   42
      IRLNC=0                                                                  59   43
      IRLSP=0                                                                  59   44
      IRLNB=0                                                                  59   45
      IBCCF=0                                                                  59   46
      ISPEED=0                                                                 59   47
      ICMUNT=0                                                                 59   48
   30 CONTINUE                                                                 59   49
      I=I+1                                                                    59   50
      IF(I.LE.0) GO TO 100                                                     59   51
      CALL HALF(DML,I,LINK)                                                    59   52
      LINK = LINK + 1                                                          59   53
      CALL GETBY(NDLNK,LINK,NDD)                                               59   54
      CALL GETBY(NDBL,LINK,NI)                                                 59   55
      IF(NI .GT. 0) GO TO 35                                                   59   56
      I=I+   +1                                                                59   57
      GO TO                                                                    59   58
   35 CONTINUE                                                                 59   59
                                                                               59   60
C      USING ONLY ONE DETECTOR/ LINK                                           59   61
C                                                                              59   62
C      NII=1                                                                   59   63
C                                                                              59   64
C      GO TO 41                                                                59   65
C   40 CONTINUE                                                                59   66
C      I=I+1                                                                   59   67
C                                                                              59   68
C                                                                              59   69
C ******   THIS TABLE IS INCONSISTENT WITH THE ASSEMBLY LANGUAGE                59   70
C   VERSION OF GC=1                                                            59   71
C                                                                              59   72
C                                                                              59   73
C  41 CALL GETBI(DMLP,I,ICD,0)                                                 59   74
C                                                                              59   75
C                                                                              59   76
C     TEST FOR DUMMY DETECTOR                                                  59   77
C     IF(ICD.EQ.1) GO TO 60                                                    59   78
C  IN GC=1 THIS IS A BYTE VARIABLE WITH VALUE 1S FOR DUMMIES                   59   79
C                                                                              59   80
C                                                                              59   81
C                                                                              59   82
C                                                                              59   83
C   GET FAILED DETECTOR BIT                                                    59   84
      CALL GETBI(DMALF,I,IDF,0)                                                59   85
      IF(IDF.NE.0) GO TO 60                                                    59   86
      CALL GETBY(CC2P,I,IRC)                                                   59   87
      CALL HALF(RAMSPP,I,IRS)                                                  59   88
      CALL HALF(RAMBCP,I,IRB)                                                  59   89
      IBC=(IRB+8)/16                                                           59   90
C   CLEAR COUNTER AND RAM ACCUMULATORS                                         59   91
      CALL PKBYT(CC2P,I,0)                                                     59   92
      CALL PKHW(RAMSPP,I,0)                                                    59   93
      CALL PKHW(RAMBCP,I,0)                                                    59   94
      IRLNC=IRLNC+IRC                                                          59   95
      IRLSP=IRLSP+IRS                                                          59   96
      IRLNB=IRLNB+IBC                                                          59   97
   60 CONTINUE                                                                 59   98
      NDD=NDD+1                                                                59   99
```

```
      IF(NDD.GT.0) GO TO 40                                          59  100
C     PERFORM RTNFT CALCULATIONS                                     59  101
      CALL GETBY(DFAIL,LINK,IFAIL)                                   59  102
      IF(IFAIL.EQ.0) GO TO 70                                        59  103
      CALL HALF(VMIST,LINK,IMST)                                     59  104
      IV8L=IMST/2                                                    59  105
      CALL HALF(AMIST,LINK,IM8)                                      59  106
      I8CC=IM8*100/32768                                             59  107
      ISP=(IV8L*32768)/(IM8*180)                                     59  108
      GO TO 80                                                       59  109
   70 CONTINUE                                                       59  110
      IV8L=(IRLNC*8PTIM)/MII                                         59  111
      ISP=(IRLSP*KV1)/IRLNC                                          59  112
      ISP=ISP*LL1/65536                                              59  113
      ISP=11*ISP/448                                                 59  114
      I8CC=IRLN8*5/(8PTIME*96)                                       59  115
   80 CONTINUE                                                       59  116
      CALL PKHA(TBUFF,ISTX,LINK)                                     59  117
      CALL PKHA(TBUFF,ISTX+1,IFAIL)                                  59  118
      CALL PKHA(TBUFF,ISTX+2,IV8L)                                   59  119
      CALL PKHA(TBUFF,ISTX+3,ISP)                                    59  120
      CALL PKHA(TBUFF,ISTX+4,I8CC)                                   59  121
      CALL PKHA(TBUFF,ISTX+5,IDF)                                    59  122
      ISTX=ISTX+10                                                   59  123
      GO TO 60                                                       59  124
  100 CONTINUE                                                       59  125
      CALL BUTTBF(TBUFF)                                             59  126
      RETURN                                                         59  127
      END                                                            59  128
```

2.6.92 SUBROUTINE TRFLG

```
ROUTINE:  TRFLG

C       TRFLG                                                          61    1
        SUBROUTINE TRFLG                                               61    2
        INTEGER TRANSF                                                 61    3
        EQUIVALENCE (TRANSF,STBYD(21))                                 61    4
        COMMON /BLK13/ CICTF(9)    , CTRDF(6)    , STBYD(9)    ,       61    5
       * CONT3(62)   , CJKMF(31)   , CYCLC(31)   , ENINT(496)  ,       61    6
       * ENBFF(31)   , GBBT(124)   , GAATP(31)   , GBATP(31)   ,       61    7
       * GLAMC(124)  , GBBG(124)   , GUABC(124)  , INTDU(496)  ,       61    8
       * SSSS(124)   , TK (31)     , ARKBF(31)                         61    9
C       TRFLG INTERLEAVES THE TRFLG AND STBYD ARRAYS WITH BITS         61   10
C       65535 DECIMAL = 16 ONES BINARY                                 61   11
        DATA LBC/65535/                                                61   12
C         STORE 32 BITS IN WORDS 1,3,5,7 OF THE TRANSITION FLAG ARRAY. 61   13
C           STORE 32 BITS IN WORDS 2,4,6,8 OF THE STBYD ARRAY          61   14
        DO 10 I=1,7,2                                                  61   15
        CALL PTHLF(TRANSF,2*I-1,LBC)                                   61   16
        CALL PTHLF(TRANSF,2*I,LBC)                                     61   17
   10   CONTINUE                                                       61   18
        RETURN                                                         61   19
        END                                                            61   20
```

2.6.93 ROUTINE PREDICT

```
ROUTINE:  PREDICT

C  *   PREDICT                                                          15    1
       SUBROUTINE PREDICT                                               15    2
       COMMON /BLK19/ CC2(129), DFAIL(69), DBF(17),                     15    3
      * MI(31)      , RA=BC(258)  ,  RA=SP(258)  ,  RTC         ,      15    4
      * TSTRT(516)                                                     15    5
       COMMON /BLK24/ AMIST(138), CNDIS, DCF,                           15    6
      * DM          , FMTBD       ,  FSTFL       ,  HLIDF       ,     15    7
      * HLIDT(96)   , NHDAY       ,  PRCBD       ,  PTN(7=5)    ,     15    8
      * SMTFL, SRDIS, THRSH, VMIST(136)                                15    9
       COMMON /RTT5/ TBUFF(1384),TB5IZE                                 15   10
       INTEGER TBUFF,TB5IZE                                             15   11
       INTEGER HLIDF                                                    15   12
       INTEGER HBLDF,JB(7),TIME,DUM,DATA                                15   13
       DIMENSION TIMM(2)                                                15   14
       INTEGER TIMM                                                     15   15
       COMMON/BLK3/PV(262),PS(262)                                      15   16
       COMMON/BLK4/DATA(1=4,8),NL                                       15   17
       COMMON /BLK5/ IPRD, IWT, ITRDLY, JLIM(8)                         15   18
       COMMON/BLK89/ ITSAVE,HBLDF,CP(275),CS(275)                       15   19
       INTEGER PV,PS                                                    15   20
       DIMENSION RR(2),STAT(9,2,50),LBAD(35)                            15   21
       EQUIVALENCE (STAT,DATA)                                          15   22
       EQUIVALENCE (KK,JB(2)),(LL,JB(5))                                15   23
       DATA NSTAT/50/                                                   15   24
       DATA NWSTAT/900/                                                 15   25
       DATA NDATA/8/                                                    15   26
       DATA NWDATA/1152/                                                15   27
       DATA LBAD/35=0/                                                  15   28
C                                                                       15   29
       IPRD = 0                                                         15   30
       NN = 0                                                           15   31
       CALL BUFFER IN(18,1,CP,550,II,NN)                                15   32
       DECODE(5,1000,TBUFF) IHR,MIN                                     15   33
 1000  FORMAT (I2,1X,I2)                                                15   34
       MIN = 60 * IHR + MIN                                             15   35
       TIME = (MIN/5) + 84                                              15   36
       IF(TIME.LT.1) TIME = TIME + 288                                  15   37
       IF(TIME.NE.ITSAVE) GO TO 35                                      15   38
C                                                                       15   39
C          UPDATE PREDICTION STATISTICS                                 15   40
C                                                                       15   41
       NN = 0                                                           15   42
       IT = ITSAVE + 1                                                  15   43
       IUNIT = 12                                                       15   44
       IP =NSTAT                                                        15   45
       DO 30 I=1,NL                                                     15   46
       IP = IP + 1                                                      15   47
       IF(IP.LE.NSTAT) GO TO 22                                         15   48
       IF(I.EQ.1) GO TO 16                                              15   49
       CALL BUFFER OUT(IUNIT,1,STAT,NWSTAT,II,NN)                       15   50
       IUNIT = IUNIT + 1                                                15   51
  16   CONTINUE                                                         15   52
       CALL BUFFER IN(IUNIT,1,STAT,NWSTAT,II,NN)                        15   53
  19   IF(II.NE.2) GO TO 19                                             15   54
       IP = 1                                                           15   55
C                                                                       15   56
C          BYPASS IF LINK HAS FAILED                                    15   57
C *                                                                     15   58
  22   CALL GETBY(DFAIL,I,IDFAIL)                                       15   59
       IF(IDFAIL.EQ.1) GO TO 30                                         15   60
       IF(IT.GT.145) GO TO 30                                           15   61
       CALL LOMBES(I,KK,LL,DUM)                                         15   62
       IF(KK.EQ.0) KK=1                                                 15   63
       IF(LL.EQ.0) LL = 1                                               15   64
       RR(1) = JB(2) - PV(I)                                            15   65
       RR(2) = JB(5) - PS(I)                                            15   66
       DO 24 J = 1,2                                                    15   67
       STAT(1,J,IP) = STAT(1,J,IP)+1.0                                  15   68
       STAT(2,J,IP) = STAT(2,J,IP) +RR(J)                               15   69
       STAT(3,J,IP) = STAT(3,J,IP)+RR(J)**2                             15   70
  24   CONTINUE                                                         15   71
       RR(1) = RR(1) / JB(2)                                            15   72
       RR(2) = RR(2) / JB(5)                                            15   73
       DO 26 J = 1,2                                                    15   74
       STAT(4,J,IP) = STAT(4,J,IP) + RR(J)                              15   75
       STAT(5,J,IP) = STAT(5,J,IP) + RR(J)**2                           15   76
       RR(J) = ABS(RR(J))                                               15   77
       STAT(6,J,IP) = STAT(6,J,IP) + RR(J)                              15   78
       IF(RR(J).GT..05) STAT(7,J,IP) = STAT(7,J,IP) + 1.0               15   79
       IF(RR(J).GT..10) STAT(8,J,IP) = STAT(8,J,IP) + 1.0               15   80
       IF(RR(J).GT..20) STAT(9,J,IP) = STAT(9,J,IP) + 1.0               15   81
  26   CONTINUE                                                         15   82
  30   CONTINUE                                                         15   83
       CALL BUFFER OUT(IUNIT,1,STAT,NWSTAT,II,NN)                       15   84
       GO TO 45                                                         15   85
C                                                                       15   86
C                                                                       15   87
  35   CONTINUE                                                         15   88
       IT = TIME + 1                                                    15   89
C                                                                       15   90
C          CHECK FOR HOLIDAY OR TIME OUT OF BOUNDS                      15   91
C                                                                       15   92
  45   CONTINUE                                                         15   93
       DO 46 I = 1,NL                                                   15   94
       PV(I) = 0                                                        15   95
       PS(I) = 0                                                        15   96
  46   CONTINUE                                                         15   97
       HBLDF=HLIDF                                                      15   98
       IF(HBLDF.EQ.0) GO TO 56                                          15   99
```

```
C                                                                       1S  100
C       STORE BASELINE PREDICTION                                       1S  101
C                                                                       1S  102
   48 DO 52 I=1,NL                                                      1S  103
      CALL LOMBES(I,KK,LL,DUM)                                          1S  104
      PV(I) = JB(2)                                                     1S  105
      PS(I) = JB(5)                                                     1S  106
   52 CONTINUE                                                          1S  107
      GO TO 95                                                          1S  108
   56 IF(IT.GT.144) GO TO 48                                            1S  109
C                                                                       1S  110
C         PREDICT FOR NEXT 15-MINUTES                                   1S  111
C                                                                       1S  112
      IPRD = 1                                                          1S  113
      NN = 0                                                            1S  114
      IP = NDATA                                                        1S  115
      LB = 1                                                            1S  116
      DO 80 I=1,NL                                                      1S  117
      IP = IP + 1                                                       1S  118
      IF(IP.LE.NDATA) GO TO 58                                          1S  119
      CALL BUFFER IN(11,1,DATA,NNDATA,II,NN)                            1S  120
      NN = NN + 13                                                      1S  121
      IP = 1                                                            1S  122
C                                                                       1S  123
C         GET FOURIER PREDICTION                                        1S  124
C                                                                       1S  125
   58 CONTINUE                                                          1S  126
      L = 0                                                             1S  127
      JJ = DATA(IT,IP)                                                  1S  128
      CALL HALF(JJ,2,L)                                                 1S  129
      IF(L.EQ.0) GO TO 60                                               1S  130
      SP = L                                                            1S  131
      CALL HALF(JJ,1,L)                                                 1S  132
      IF(L.EQ.0) GO TO 60                                               1S  133
      VP = L                                                            1S  134
C                                                                       1S  135
C         STORE BASELINE IF NO FOURIER PREDICATION                      1S  136
C                                                                       1S  137
      IF(I.NE.LBAD(LB)) GO TO 59                                        1S  138
      LB = LB+1                                                         1S  139
   60 CONTINUE                                                          1S  140
      CALL LOMBES(I,KK,LL,DUM)                                          1S  141
      VP = JB(2)                                                        1S  142
      SP = JB(5)                                                        1S  143
      GO TO 68                                                          1S  144
   59 CONTINUE                                                          1S  145
C                                                                       1S  146
C         BYPASS CORRECTION IF LINK HAS FAILED                          1S  147
C                                                                       1S  148
      CALL GETBY(IFAIL,I,IDFAIL)                                        1S  149
      IF(IDFAIL.EQ.1) GO TO 68                                          1S  150
      IF(IT.EQ.1) GO TO 61                                              1S  151
      IF(ITSAVE.NE.IT-1) GO TO 61                                       1S  152
      CALL LOMBES(I,KK,LL,DUM)                                          1S  153
      JJ = DATA(IT-1,IP)                                                1S  154
      CALL HALF(JJ,2,L)                                                 1S  155
      SSS = L                                                           1S  156
      CALL HALF(JJ,1,L)                                                 1S  157
      RRR = L                                                           1S  158
      R = JB(2) - RRR                                                   1S  159
      T = R - CP(I)                                                     1S  160
      CP(I) = .9*CP(I) + .1*R                                           1S  161
      S = JB(5) - SSS                                                   1S  162
      U = S - CS(I)                                                     1S  163
      CS(I) = .9*CS(I) + .1*S                                           1S  164
   61 VP=VP+CP(I)                                                       1S  165
      SP=SP+CS(I)                                                       1S  166
      IF(IT.EQ.1) GO TO 68                                              1S  167
      IF(ITSAVE.NE.IT-1) GO TO 68                                       1S  168
      VP=VP+.2*T                                                        1S  169
      SP=SP+.5*U                                                        1S  170
   68 PV(I) = VP                                                        1S  171
      PS(I) = SP                                                        1S  172
   80 CONTINUE                                                          1S  173
   85 CONTINUE                                                          1S  174
      DO 90 I=1,NL                                                      1S  175
      IF(PV(I).NE.0) GO TO 90                                           1S  176
      CALL LOMBES(I,KK,LL,DUM)                                          1S  177
      PV(I) = JB(2)                                                     1S  178
      PS(I) = JB(5)                                                     1S  179
   90 CONTINUE                                                          1S  180
      ITSAVE = IT                                                       1S  181
      NN = 0                                                            1S  182
      CALL BUFFER OUT(18,1,CP,SSS,II,NN)                                1S  183
   95 CONTINUE                                                          1S  184
      RETURN                                                            1S  185
      END                                                               1S  186
```

2.6.94 SUBROUTINE LDMOE5

```
ROUTINE LDMOE5

C   *   LDMOE5                                                          60    1
      SUBROUTINE LDMOE5(LNK,IVOL,ISP,IBCC)                              60    2
      COMMON /RTYP/ TBUFF(1384),TBSIZE                                  60    3
      INTEGER TBUFF, BSIZE                                              60    4
      COMMON /BLKS/ IPRO, IWT, ITY, JLIM(4)                             60    5
      EQUIVALENCE (JLIM(1),ISLL),   IM(2),ISUL),(JLIM(3),IVLL),         60    6
     1 (JLIM(4),IVUL)                                                   60    7
      IF(LNK.NE.255) GO TO 1                                            60    8
    5 CONTINUE                                                          60    9
      IVOL=255                                                          60   10
      ISP=35                                                            60   11
      IBCC=4                                                            60   12
      RETURN                                                            60   13
   10 CONTINUE                                                          60   14
      IST=9                                                             60   15
      NBK=(TBSIZE-4)/5                                                  60   16
      DO 20 I=1,NBK                                                     60   17
      CALL HALF(TBUFF,IST,LINK)                                         60   18
      IF(LINK.EQ.LNK) GO TO 30                                          60   19
      IST=IST+10                                                        60   20
   20 CONTINUE                                                          60   21
      GO TO 5                                                           60   22
   30 CONTINUE                                                          60   23
      CALL HALF(TBUFF,IST+1,IFAL)                                       60   24
      IF(IFAL.NE.0) GO TO 5                                             60   25
      CALL HALF(TBUFF,IST+2,IVOL)                                       60   26
      CALL HALF(TBUFF,IST+3,ISP)                                        60   27
      CALL HALF(TBUFF,IST+4,IBCC)                                       60   28
      IF( IVOL .LT. IVLL ) IVOL = IVLL                                  60   29
      IF(IVOL.GT.IVUL) IVOL=IVUL                                        60   30
      IF( ISP .LT. ISLL )  ISP = ISLL                                   60   31
      IF( ISP .GT. ISUL )  ISP = ISUL                                   60   32
      RETURN                                                            60   33
      END                                                               60   34
```

2.6.95 ROUTINE RTSND

```
ROUTINE:  RTSND

C   *   RTSND                                                          1    1
C                                                                      1    2
C *** SUBNET,BRK DETERMINATION ROUTINE                                 1    3
      SUBROUTINE RTSND(LEVSS,NSUB)                                     1    4
        COMMON/RTNDMP/IDMP(12)                                         1    5
      COMMON /BLK/ ISB(8,8),NCYCLE,CYC,IS9(8)                          1    6
      COMMON/BLK3/PVV(262),PS(262)                                     1    7
      COMMON /BLKIFC/ INTF,IDUMMY(54)                                  1    8
      COMMON /BLK5/ IORD, INT, ITROLY, JLIN(4)                         1    9
      COMMON /G2CONT/ ARKOFS(124),I9(124),IEA(31),ENTCYC(31),SPLIT(124),  1   10
     1 CORPN(31)                                                       1   11
      COMMON /BLK7G2/LEVSS(4),CYCL9(8),INTFB(5),NSUBB,IRESPT           1   12
      COMMON/SECTIN/ ISECT(8)                                          1   13
      COMMON /HBLOSB/ SURCON(124),HLOSPL(4),HLOBFF(4),IGATEM,IGATEM    1   14
      INTEGER SURCON,HLOSPL,HLOBFF                                     1   15
C     ADDITIONAL CARDS FOR INTERFACING                                 1   16
      DIMENSION PV(262)                                                1   17
      DIMENSION INTF(5)                                                1   18
C                                                                      1   19
      INTEGER PV,PS                                                    1   20
      INTEGER PVV                                                      1   21
      INTEGER SPLIT                                                    1   22
      DIMENSION ISCT(124)                                              1   23
      DIMENSION IGRUP(8,5),ITKMIN(8),JB(7)                             1   24
      DIMENSION NCYCLE(8),CYC(8,5)                                     1   25
      DIMENSION CYMAX(8), LEVSS(4), VPHSE(3), CYCL(8)                  1   26
      DIMENSION LINK(6)                                                1   27
      DIMENSION INTRS(45)                                              1   28
      EQUIVALENCE (LINK1,LINK(1)),(LINK2,LINK(2)),(LINK3,LINK(3))      1   29
      EQUIVALENCE (LINK4,LINK(4)),(LINK5,LINK(5)),(LINK6,LINK(6))      1   30
      EQUIVALENCE (VPHASA,VPHSE(1)),(VPHASB,VPHSE(2)),(VPHASC,VPHSE(3))  1   31
      DATA TBL /20*/                                                   1   32
      DATA NMAX/45/                                                    1   33
      DATA NSEC /4/                                                    1   34
      DATA NGRPS /6/                                                   1   35
      DATA XC/.01/                                                     1   36
C AVERAGE SPLIT CHANGE THRESHOLD                                       1   37
      DATA SCTBL/0.20/                                                 1   38
C STORE CURRENT SPLITS                                                 1   39
      DO 1000 I = 1, 124                                               1   40
      ISCT(I) = SPLIT(I)                                               1   41
 1000 CONTINUE                                                         1   42
C                                                                      1   43
C     ADDITIONAL CARDS FOR INTERFACING                                 1   44
C     SET INTERFACE FLAGS                                              1   45
      DO 76 I=1,5                                                      1   46
      INTF(I)=0                                                        1   47
76    CONTINUE                                                         1   48
      DO 1004 I = 1, 8                                                 1   49
      ISECT(I) = 0                                                     1   50
 1004 CONTINUE                                                         1   51
C                                                                      1   52
      CONS=2.1/3600.                                                   1   53
      DO 4 N=1,5                                                       1   54
      DO 4 M=1,8                                                       1   55
      CYC(M,N)=0                                                       1   56
4     CONTINUE                                                         1   57
      DO 3 M=1,8                                                       1   58
      NCYCLE(M)=0                                                      1   59
      DO 3 N=1,8                                                       1   60
      ISB(N,M)=0                                                       1   61
      IGRUP(N,M)=0                                                     1   62
3     CONTINUE                                                         1   63
C *** LOOP CORE AND BUFFER GROUPS                                      1   64
C *** BUILD SCRATCH GROUPINGS                                          1   65
      L=0                                                              1   66
      M=0                                                              1   67
  500 M=M+1                                                            1   68
      IF(M.GE.(NSEC+1))GO TO 506                                       1   69
      K=1                                                              1   70
      L=L+1                                                            1   71
      IF(LEVSS(M).EQ.1) GO TO 501                                      1   72
      IF(LEVSS(M).EQ.2) GO TO 502                                      1   73
      IF(LEVSS(M).EQ.3) GO TO 503                                      1   74
      IF(LEVSS(M).EQ.4) GO TO 504                                      1   75
      GO TO 506                                                        1   76
  501 CONTINUE                                                         1   77
      IF(M.LT.NSEC.AND.LEVSS(M+1).EQ.2) GO TO 505                      1   78
      ISECT(3)=1                                                       1   79
      IGRUP(K,L)=3                                                     1   80
C *** IF(LEVSS(2).EQ.3) GO TO 507                                      1   81
      GO TO 500                                                        1   82
505   IGRUP(K,L)=1                                                     1   83
      IGRUP(K+1,L)=2                                                   1   84
      IGRUP(K+2,L)=3                                                   1   85
      ISECT(1)=1                                                       1   86
      ISECT(2)=1                                                       1   87
      ISECT(3)=1                                                       1   88
      INTF(4)=1                                                        1   89
      INTF(3)=1                                                        1   90
      M=M+1                                                            1   91
C *** IF(LEVSS(3).EQ.3) GO TO 508                                      1   92
      GO TO 500                                                        1   93
  502 IGRUP(K,L)=1                                                     1   94
      IGRUP(K+1,L)=2                                                   1   95
      ISECT(1)=1                                                       1   96
      ISECT(2)=1                                                       1   97
      INTF(4)=1                                                        1   98
```

```
      GO TO 500                                                          1   99
  503 IGROUP(K,L)=4                                                      1  100
      IGROUP(K+1,L)=5                                                    1  101
      INTF(1)=1                                                          1  102
      ISECT(4)=1                                                         1  103
      ISECT(5)=1                                                         1  104
      GO TO 500                                                          1  105
  504 IGROUP(K,L)=6                                                      1  106
      ISECT(6)=1                                                         1  107
  506 CONTINUE                                                           1  108
      DO 508 M=1,3                                                       1  109
      IF(LEVSS(M).EQ.0) GO TO 508                                        1  110
      J=LEVSS(M)                                                         1  111
      NN=N+1                                                             1  112
      DO 507 N=NN,4                                                      1  113
      IF(LEVSS(N).EQ.0) GO TO 507                                        1  114
      K=LEVSS(N)                                                         1  115
      IF(J.EQ.1.AND.K.EQ.2) INTF(3)=1                                    1  116
      IF(J.EQ.1.AND.K.EQ.3) INTF(2)=1                                    1  117
      IF(J.EQ.3.AND.K.EQ.4) INTF(5)=1                                    1  118
  507 CONTINUE                                                           1  119
  508 CONTINUE                                                           1  120
C *** ZERO MAXIMUM CYCLE LENGTH FOR EACH CORE GROUP                      1  121
      DO 1 N=1,8                                                         1  122
      CYMAX(N)=0                                                         1  123
    1 ITKMIN(N)=0                                                        1  124
      ICOUNT=0                                                           1  125
      DO 102 K = 1, NGRPS                                                1  126
      DO 102 L = 1, NGRPS                                                1  127
      IF( IGROUP(K,L) .EQ. 0) GO TO 102                                  1  128
C             SET NUMBER OF INTERSECTIONS IN CORE                        1  129
      ICOUNT = ICOUNT + 1                                                1  130
      IGP = IGROUP( K,L)                                                 1  131
      CALL INTX( IGP, INTRS, ITK )                                       1  132
      ITKMIN(ICOUNT) = ITK                                               1  133
C             LOOP INTERSECTIONS IN CORE GROUP                           1  134
      DO 100  INT = 1, NMAX                                              1  135
C             GET BACKGROUND INTERSECTION NUMBER OF THIS INT IN GROUP     1  136
      ISN = INTRS( INT)                                                  1  137
      IF( ISN .EQ. 0)  GO TO 100                                         1  138
      CALL LPHASV( ISN, LINK, KBPH, IGAB, IGBC,IGABC,IGAMIN, IBMIN,      1  139
     1 BCMIN)                                                            1  140
      CALL S SCYC( ISN, ISUMA, ISUMB, ISUMC, ISUMT, ICYCLE)              1  141
C             GET SURROUNDING PREDICTOR LINK NUMBER FOR EACH             1  142
C             INTERSECTION PHASE                                         1  143
      SUMT = FLOAT(ISUMT)/2.0                                            1  144
      DO 510  IL = 1, 6                                                  1  145
      IF( LINK(IL,N) .EQ. 0)  GO TO 510                                  1  146
      IL = LINK(IL,N)                                                    1  147
      CALL LOOPES( IL, INTL, ISPEED, IPCC)                               1  148
      PV(IL) = INTL                                                      1  149
      IF( IPCC .EQ. 1)  PV(IL) = PVV(IL)                                 1  150
  510 CONTINUE                                                           1  151
      VSUM = 0.0                                                         1  152
      TLOSS= 0.0                                                         1  153
      IF( LINK1 .EQ. 0)  VPHASA = PV( LINK1)                             1  154
      IF( LINK2 .EQ. 0 .OR. PV(LINK2) .GT. VPHASA)  VPHASA = PV( LINK2)  1  155
      IF(LINK3 .EQ. 0) VPHASB = PV( LINK3)                               1  156
      IF( LINK4 .EQ. 0 .OR. PV( LINK4) .GT. VPHASB)  VPHASB = PV( LINK4) 1  157
      IF( LINK5 .EQ. 0)  VPHASC = PV( LINK5)                             1  158
      VA = VPHASA                                                        1  159
      IF( KBPH .EQ. 2)  VA = AMAX1(VA, VPHASC)                           1  160
      VB = VPHASB                                                        1  161
      IF( KBPH .EQ. 3)  VB = AMAX1(VB, VPHASC)                           1  162
      VSUM = VA + VB                                                     1  163
      IF( KBPH .EQ. 1) VSUM = VSUM + VPHASC                              1  164
      IF( VSUM .LE. 0.0)  GO TO 10                                       1  165
      TLOSS = SUMT * 3.0                                                 1  166
      IF( KBPH .EQ. 1) TLOSS = TLOSS + 5.0                               1  167
      Y = VSUM * CONS                                                    1  168
      IF( Y .GT. 0.95)  Y = 0.95                                         1  169
      CYCLE = (1.5*TLOSS+5.)/( 1.-Y)                                     1  170
      CYCLE = .333 * CYCLE                                               1  171
      ICYSAVE=CYCLE                                                      1  172
      IF( CYCLE .LE. ITK + ITKMIN(ICOUNT)) CYCLE=ITKMIN(ICOUNT) + .      1  173
  201 IF( CYCLE .GT. 120.)  CYCLE = 120.                                 1  174
       IF(CYCLE .LE. CYMAX(ICOUNT)) GO TO 10                             1  175
       CYMAX(ICOUNT) = CYCLE                                             1  176
      IDMP(1)=ICYSAVE                                                    1  177
      IDMP(2)=CYCLE                                                      1  178
      IDMP(4)=VSUM                                                       1  179
      IDMP(5)=VPHASA                                                     1  180
      IDMP(6)=VPHASB                                                     1  181
      IDMP(7)=VPHASC                                                     1  182
      IDMP(8)=SUMT                                                       1  183
      IDMP(9)=TLOSS                                                      1  184
      IDMP(10)=ITKMIN(ICOUNT)                                            1  185
      IDMP(11)=ISN                                                       1  186
      IDMP(12)=VOLUME                                                    1  187
  100 CONTINUE                                                           1  188
  102 CONTINUE                                                           1  189
  101 CONTINUE                                                           1  190
      NSUB=1                                                             1  191
      N=0                                                                1  192
      K=0                                                                1  193
      I=0                                                                1  194
      DO 200 L=1,NGRPS                                                   1  195
  602 K=K+1                                                              1  196
      I=I+1                                                              1  197
      N=N+1                                                              1  198
      IF(K.GT.NGRPS) GO TO 201                                           1  199
      IF(IGROUP(N,L).EQ.0) GO TO 200                                     1  200
      IF(IGROUP(I+1,L).EQ.0) GO TO 140                                   1  201
C***  TEST CRITERIA FOR COMBINING CORE/BUFFER GROUPS                     1  202
      IF(ABS(CYMAX(K)-CYMAX(K+1)).GT.TOL) GO TO 160                      1  203
```

```
      ISB(I,NSUB)=IGRUP(I,L)                                                  1  205
      IF(CYMAX(K).GT.CYMAX(K+1)) CYMAX(K+1)=CYMAX(K)                          1  206
      CYCL(NSUB)=CYMAX(K+1)                                                   1  207
      GO TO 202                                                               1  208
  180 CYCL(NSUB)=CYMAX(K)                                                     1  209
C***  KEEP RECORD OF NUMBER OF BUFFERS AND CORES IN SUBNET                    1  210
      ISM(I,NSUB)=IGRUP(I,L)                                                  1  211
  170 NSUB=NSUB+1                                                             1  212
      I=I                                                                     1  213
      IF(IGRUP(M+1,L).NE.0) GO TO 202                                         1  214
      M=0                                                                     1  215
  200 CONTINUE                                                                1  216
  201 CONTINUE                                                                1  217
      NSUB=NSUB-1                                                             1  218
C                                                                             1  219
C     ADDITIONAL CARDS FOR INTERFACING                                        1  220
C                                                                             1  221
C     IN TRAFFIC RESPONSIVE, TURN OFF INTERFACE FLAGS IF CORE GROUPS          1  222
C     HAVE COMBINED                                                           1  223
C     CORE GROUPS 1 AND 2 COMBINE (                                           1  224
      IF(ISB(2,1).EQ.2) INTF(4)=0                                             1  225
C     CORE GROUPS 2 AND 3 COMBINE (                                           1  226
      IF(ISB(3,1).EQ.3) INTF(3)=0                                             1  227
      IF(ISB(2,2).EQ.3) INTF(3)=0                                             1  228
C     CORE GROUPS 4 AND 5 COMBINE (                                           1  229
      IF(ISB(2,2).EQ.5) INTF(1)=0                                             1  230
      IF(ISB(2,3).EQ.5) INTF(1)=0                                             1  231
      IF(ISB(2,4).EQ.5) INTF(1)=0                                             1  232
      IF(INTF(1).NE.0) INTF(2)=0                                              1  233
 77   CONTINUE                                                                1  234
C                                                                             1  235
C *** NOW COMPILE CYCLE LENGTH RANGE AND MAP FOR LSTGOS PACKAGE               1  236
      DO 301 I=1,NSUB                                                         1  237
C **** FIRST SET UP SIGNAL CYCLE SELECTION TABLES                             1  238
      JCYCL=CYCL(I)                                                           1  239
      MCYCL=JCYCL                                                             1  240
      IF(MCYCL.GT.100) MCYCL=MCYCL-100                                        1  241
      KCYCL=MCYCL/10*10                                                       1  242
      KCYCL=MCYCL-KCYCL                                                       1  243
      ICYCLE=0                                                                1  244
      IF(KCYCL.GT.2) ICYCLE=5                                                 1  245
      IF(KCYCL.GT.7) ICYCLE=10                                                1  246
      CYC(I,1) =JCYCL+ICYCLE-KCYCL                                            1  247
      NCYCLE(I)=1                                                             1  248
  301 CONTINUE                                                                1  249
      IF(NSUB.NE.NSUB) IRESET = 1                                             1  250
      NSUBB = NSUB                                                            1  251
      DO 460 N = 1, NSUB                                                      1  252
      CYCLE = CYC( N, 1)                                                      1  253
      CONS1 = CONS + CYCLE                                                    1  254
      DO 460 M = 1, NGRPS                                                     1  255
      IGP = ISB( N, M)                                                        1  256
      IF( IGP .EQ. 0)  GO TO 460                                              1  257
      CALL IRTN( IGP, INTRS, ITKM)                                            1  258
C         1    INITIALIZE SPLIT CHANGE COMPUTATION                          1  259
      SCTOT = 0.0                                                             1  260
      SCCNT = 0.0                                                             1  261
      DO 450  INT = 1, NMAX                                                   1  262
      ISN = INTRS( INT)                                                       1  263
      IF( ISN .EQ. 0)  GO TO 450                                              1  264
      CALL LPHASV( ISN, LINK, K3PH, IGAB, IGBC, IGABC, IGAMIN, IGBMIN,        1  265
     1 IGCMIN)                                                                1  266
      GAMIN = IGAMIN                                                          1  267
      GAMIN = GAMIN/2.                                                        1  268
      GBMIN = IGBMIN                                                          1  269
      GBMIN =  GBMIN/2.                                                       1  270
      GCMIN = IGCMIN                                                          1  271
      GCMIN = GCMIN/2.                                                        1  272
      CALL SUBCYL( ISN, ISUMA, ISUMB, ISUMC, ISUMT, ICYCLE)                   1  273
      SUMT = ISUMT                                                            1  274
      SUMT = SUMT/2.                                                          1  275
      GABC = CYCLE - SUMT                                                     1  276
C             COMPUTE GREEN DEMAND                                            1  277
      DO 410 ILN = 1, 6                                                       1  278
      IF( LINK(ILN) .EQ. 0)  GO TO 410                                        1  279
      IL = LINK( ILN)                                                         1  280
      CALL LUMSEG( IL, IVOL, ISPEED, IOCC)                                    1  281
      PV(ILN) = IVOL                                                          1  282
      IF( IPRD .EQ. 1)  PV(ILN) = PVV( IL)                                    1  283
      PV( ILN) = PV( ILN) + INT * IOCC                                        1  284
  410 CONTINUE                                                                1  285
      IF( LNK1 .NE. 0)  VPHASA = PV( LNK1)                                    1  286
      IF( LNK2 .NE. 0 .AND. PV(LNK2) .GT. VPHASA)  VPHASA = PV(LNK2)          1  287
      IF( LNK3 .NE. 0) VPHASB = PV( LNK3)                                     1  288
      IF( LNK4 .NE. 0 .AND. PV(LNK4) .GT. VPHASB)  VPHASB = PV( LNK4)         1  289
      IF( LNK5 .NE. 0) VPHASC = PV( LNK5)                                     1  290
      GDA = VPHASA * CONS1                                                    1  291
      GDB = VPHASB * CONS1                                                    1  292
      GDC = VPHASC * CONS1                                                    1  293
      IF( GDA+GDB+GDC .LE. 0.0)  GO TO 450                                    1  294
      IF( K3PH .NE. 0)  GO TO (415, 416, 417), K3PH                           1  295
C             COMPUTE A PHASE SPLIT                                           1  296
      GA = (GDA/( GDA+GDB)) * GABC                                            1  297
      IF( GA .LT. GAMIN)  GA = GAMIN                                          1  298
      IF( GABC-GA .LT. GBMIN)  GA = GABC - GBMIN                              1  299
      SPLITA = GA / GABC                                                      1  300
      ISPLT = SPLITA * 1000. + 5                                              1  301
      ISPLT2 = 0                                                              1  302
      GO TO 418                                                               1  303
  415 CONTINUE                                                                1  304
C             COMPUTE A AND C PHASE SPLITS                                    1  305
      GA = ( GDA/( GDA+GDB+GDC)) * GABC                                       1  306
      GC = ( GDC/( GDA+GDB+GDC)) * GABC                                       1  307
      IF( GA .LT. GAMIN)  GA = GAMIN                                          1  308
      IF( GC .LT. GCMIN)  GC = GCMIN                                          1  309
      IF( GABC-(GA+GC) .GE. GBMIN)  GO TO 421                                 1  310
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      GA = ( GDA/( GDA+GDC))*(GABC-GBMIN)                                    1  311
      IF( GA .LT. GAMIN)  GA = GAMIN                                         1  312
      IF( GABC - (GA + GBMIN) .LT. GCMIN)  GA = GABC - ( GCMIN + GBMIN)      1  313
      GC = GABC - ( GA+GBMIN)                                                1  314
  421 CONTINUE                                                               1  315
      SPLITA = GA / GABC                                                     1  316
      ISPLT = SPLITA * 1000. + 5                                             1  317
      SPLIT2 = GC / GABC                                                     1  318
      ISPLT2 = SPLIT2 * 1000. + 5                                            1  319
      GO TO 418                                                              1  320
  416 CONTINUE                                                               1  321
C             COMPUTE B PHASE SPLIT                                          1  322
      GDAC = AMAX1( GDA, GDC)                                                1  323
      GB = ( GDB/( GDAC+GDB)) * GABC                                         1  324
      IF( GB .LT. GBMIN)  GB = GBMIN                                         1  325
      IF( GABC-GB .LT. GAMIN)  GB = GABC - GAMIN                             1  326
      GAC = GABC - GB                                                        1  327
      SPLITA = GAC / GABC                                                    1  328
      ISPLT = SPLITA * 1000. + 5                                             1  329
      ISPLT2 = 0                                                             1  330
      GO TO 418                                                              1  331
  417 CONTINUE                                                               1  332
C             COMPUTE A PHASE SPLIT                                          1  333
      GDBC = AMAX1( GDB, GDC)                                                1  334
      GA = ( GDA/( GDA+GDBC)) * GABC                                         1  335
      IF( GA .LT. GAMIN)  GA = GAMIN                                         1  336
      GBCMIN = AMAX1( GBMIN, GCMIN)                                          1  337
      IF( GABC-GA .LT. GBCMIN)  GA = GABC - GBCMIN                           1  338
      SPLITA = GA / GABC                                                     1  339
      ISPLT = SPLITA * 1000. + 5                                             1  340
      ISPLT2 = 0                                                             1  341
  418 CONTINUE                                                               1  342
      JSN = 2 * (ISN-1) + 1                                                  1  343
C             TEMPORARILY STORES SPLITS, COMPUTE CHANGE                      1  344
      CALL GETDI( HLDSPL, ISN, JSHF, 0)                                      1  345
      IF( JSHF .NE. 0)  GO TO 1001                                           1  346
      CALL PKHW( ISCT, JSN, ISPLT)                                           1  347
      CALL PKHW(ISCT, JSN+1, ISPLT2)                                         1  348
      CALL UPHW( SPLIT, JSN, ISCAC)                                          1  349
      SCAC = FLOAT( ISCAC) * XD                                              1  350
      SCAN = FLOAT( ISPLT) * XD                                              1  351
      SCTOT = SCTOT + ABS( SCAC - SCAN)/ SCAC                                1  352
      SCCNT = SCCNT + 1.0                                                    1  353
C             TRA IF NO C PHASE                                              1  354
      IF( K3PH .NE. 1)  GO TO 1001                                           1  355
      CALL UPHW( SPLIT, JSN+1, ISCCC)                                        1  356
      SCCC = FLOAT( ISCCC) * XD                                              1  357
      SCCN = FLOAT( ISPLT2) * XD                                             1  358
      SCTOT = SCTOT + ABS( SCCC-SCCN)/ SCCC                                  1  359
      SCCNT = SCCNT + 1.0                                                    1  360
 1001 CONTINUE                                                               1  361
  450 CONTINUE                                                               1  362
C             COMPUTE AVERAGE SPLIT CHANGE                                   1  363
      IF( SCCNT .LE. 0.0)  SCCNT = 1.0                                       1  364
      SCAVG = SCTOT / SCCNT                                                  1  365
C             COMPARE WITH TOLERANCE FOR POSSIBLE REOPTIMIZATION             1  366
      IF( SCAVG .GE. SCTOL)  IREOPT = 1                                      1  367
  460 CONTINUE                                                               1  368
      DO 600 I=1,8                                                           1  369
      IF(CYCLO(I).NE.CYCL(I)) IREOPT = 1                                     1  370
      CYCLO(I) = CYCL(I)                                                     1  371
  600 CONTINUE                                                               1  372
      DO 700 I=1,5                                                           1  373
      IF(INTFO(I).NE.INTF(I)) IREOPT = 1                                     1  374
      INTFO(I) = INTF(I)                                                     1  375
  700 CONTINUE                                                               1  376
C STORE NEW SPLITS IF REOPTIMIZATION FLAG IS SET                             1  377
      IF (IREOPT.NE.1)  GO TO 1003                                           1  378
      DO 1002 I = 1, 124                                                     1  379
C...CHECK FOR OPERATOR DEFINED SPLIT BEFORE CHANGING                         1  380
      CALL GETDI(HLDSPL,I,KSPHLD,0)                                          1  381
      IF(KSPHLD .EQ. 0)SPLIT(I)=ISCT(I)                                      1  382
 1002 CONTINUE                                                               1  383
 1003 CONTINUE                                                               1  384
      RETURN                                                                 1  385
      END                                                                    1  386
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2.6.96 SUBROUTINE IRTN

```
ROUTINE:   IRTN

      C   *    IRTN                                                                  2    1
          SUBROUTINE IRTN(IGR,INT,ITM)                                               2    2
          DIMENSION INT(48)                                                          2    3
          COMMON /BLK1B/  CICTF(8)     ,  CTBDF(8)     ,  STHYD(8)     ,           2    4
         * CONTRB(62)     ,  CURBF(31)    ,  CYCLC(31)    ,  ENINT(496)   ,           2    5
         * ENBFF(31)      ,  GBUT(124)    ,  GAMTP(31)    ,  GRATP(31)    ,           2    6
         * GLABC(124)     ,  GSGG(124)    ,  GUADC(124)   ,  INTBU(496)   ,           2    7
         * SSSS(124)      ,  TK1(31)      ,  XRKBF(31)                    ,           2    8
          COMMON /GBUAT/ GCONT(31),GCNTSI(2),GRPSB(2),NCIGRP(2),NBCL(2),             2    9
         1 NICIBF(2),NCR,NL,GRPS                                                     2   10
          COMMON /MISCL/ CICINH(8),LSW(3),CYCREF(5),INCG(31),ICGSI(2)                2   11
          DO 10 I=1,48                                                               2   12
          INT(I)=0                                                                   2   13
       10 CONTINUE                                                                   2   14
          ITM=0                                                                      2   15
          CALL GETBY(ICGSI,IGR,IST)                                                  2   16
          CALL GETBY(NICIGP,IGR,INN)                                                 2   17
          DO 20 I=1,INN                                                              2   18
          N=IST+I                                                                    2   19
          CALL GETBY(INCG,N,IND)                                                     2   20
          INT(I)=IND                                                                 2   21
       20 CONTINUE                                                                   2   22
          CALL GETBY(NCIGRP,IGR,INN)                                                 2   23
          CALL GETBY(GCNTSI,IGR,IST)                                                 2   24
          DO 30 I=1,INN                                                              2   25
          N=IST+I                                                                    2   26
          CALL GETBY(GCONT,N,ICON)                                                   2   27
          CALL GETBY(TKM,ICON,ITM)                                                   2   28
          ITM=(ITM+1)/2                                                              2   29
          IF(ITM.GT.ITM4) ITM=ITM                                                    2   30
       30 CONTINUE                                                                   2   31
          RETURN                                                                     2   32
          END                                                                        2   33
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2.6.97 SUBROUTINE LPHASV

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ROUTINE:  LPHASV

      C   *   LPHASV                                                          3    1
          SUBROUTINE LPHASV(INT,LNK,K3P,GAB,GBC,GABC,GAM,GBM,GCM)            3    2
          COMMON /BLK7 /ABGI(16)     , INTMI(31)   , INT2I(31)   ,           3    3
         * KCTC(17),K3PMI(31),STOPF,NGL(31)                                  3    4
          COMMON /BLK14/  CLENG      , DTLNG       , CMLNG                   3    5
         * DUMY1, DUMY2, CNTLN(372),ENTFL(5),                                3    6
         * KCL(17), KLTF(17), KCSF(17),                                      3    7
         * VAVAR(31)   , SEMSA(8)    , VRINT(123)  , LKPTR(64)               3    8
          COMMON /BLK15/  CICTF(8)   , CTBDF(8)    , STBYD(8)    ,           3    9
         * CONTR(62)    , CURBF(31)   , CYCLC(31)   , ENINT(*96)  ,         3   10
         * ENDFF(31)    , GGGT(124)   , GAWTP(31)   , GBMTP(31)   ,         3   11
         * GLABC(124)   , GGGG(124)   , GUABC(124)  , INTDU(496)  ,         3   12
         * SSSS(124)    , TKM(31)     , WRKBF(31)                           3   13
          INTEGER GAB,GBC,GABC,GAM,GBM,GCM                                   3   14
          DIMENSION LNK(6)                                                   3   15
          DO 10 I=1,6                                                        3   16
          LNK(I)=0                                                           3   17
       10 CONTINUE                                                           3   18
          CALL GETBY(K3PMI,INT,K3P)                                          3   19
          IDX=4*(INT-1)+1                                                    3   20
          CALL GETBY(GGGT,IDX,GAB)                                           3   21
          CALL GETBY(GGGT,IDX+1,GBC)                                         3   22
          CALL GETBY(GGGT,IDX+2,GABC)                                        3   23
          CALL GETBY(GGGG,IDX,GAM)                                           3   24
          CALL GETBY(GGGG,IDX+1,GBM)                                         3   25
          CALL GETBY(GGGG,IDX+2,GCM)                                         3   26
          IF(K3P.GE.2) CALL GETBY(SSSS,IDX+2,GCM)                            3   27
          IST=6*(INT-1)                                                      3   28
      C   GET SURROUNDING LINK NUMBERS AND STORE BY PHASE                    3   29
          CALL GETBY(NGL,INT,II)                                             3   30
          ISTT=IST+II                                                        3   31
       30 CONTINUE                                                           3   32
          IF(ISTT.LE.IST) GO TO 40                                           3   33
          IST=IST+1                                                          3   34
          CALL HALF(CNTLN,IST,LL)                                            3   35
          IF(LL.LT.0) GO TO 30                                               3   36
          LL=LL+1                                                            3   37
          CALL GETBY(LKPTR,LL,I)                                             3   38
          IF(I.ST.4) GO TO 30                                                3   39
          IF(LNK(I+1).EQ.0) LNK(I+1)=LL                                      3   40
          GO TO 30                                                           3   41
       40 CONTINUE                                                           3   42
          RETURN                                                             3   43
          END                                                                3   44
```

2.6.98 SUBROUTINE SMSCYL

```
R3UTINE:  SMSCYL

C  *   SMSCYL                                                              *    1
       SUMRBUTINE SMSCYL(INT,SUMA,SUMB,SUMC,SUMT,CYCLE)                    *    2
       INTEGER CYCLE,SUMA,SUMB,SUMC,SUMT                                   *    3
       C9MMBN /S2CONT/ MRKBFS(124),IB(124),IEA(31),ENTCYC(31),SPLIT(124),  *    4
      1 CURPN(31)                                                          *    5
       C9MMBN /PATNG/ ABCSTRT(124),ABCEND(124),BIAS(31),DELT(31),          *    6
      1 SMTABL(124),SABC(124),SUMABC(31)                                   *    7
       C9MMBN /BLK14/  CLENG       ,  DTLNG       ,  CMLNG               *    8
      * DUMY1, DUMY2, CNTLN(372),ENTFL(5),                                 *    9
      * KCL(17), KCTF(17), KCSF(17),                                       *   10
      * NMVAR(31)   ,  SEMSK(8)     ,  VRINT(129)  ,  LKPTR(44)           *   11
       C9MMBN /BLK18/  CICTF(6)    ,  CTBDF(8)    ,  STBYD(8)    ,        *   12
      * CONTB(62)   ,  CURBF(31)    ,  CYCLC(31)   ,  ENINT(496)  ,        *   13
      * ENBFF(31)   ,  GGGT(124)    ,  GAWTP(31)   ,  GBATP(31)   ,        *   14
      * GLABC(124)  ,  GGGG(124)    ,  GVABC(124)  ,  INTDU(496)  ,        *   15
      * SSSS(124)   ,  TKM(31)      ,  WRKBF(31)                           *   16
C        SMSCYL GETS THE LBST TIMES AND THE CYCLE LENGTH FBR AN INTERSECT  *   17
C        CYCLE = THE CYCLE LENGTH FBR THE INTERSECTIBN (INT)               *   18
       CALL GETBY(ENTCYC,INT,ICYC)                                         *   19
       CYCLE = KCL(ICYC)                                                   *   20
C        SUMA, SUMB, AND SUMC ARE THE LBST TIMES FBLLBWING THE A, B, AND   *   21
C        SUMT IS THE LBST TIME PER CYCLE                                   *   22
       IPBSN = 4*(INT-1)                                                   *   23
       CALL GETBY(SSSS,IPBSN+1,SUMA)                                       *   24
       CALL GETBY(SSSS,IPBSN+2,SUMB)                                       *   25
       CALL GETBY(SSSS,IPBSN+3,SUMC)                                       *   26
       CALL GETBY(SMTABC,IPBSN+4,SUMT)                                     *   27
       CBNTINUE                                                            *   28
       RETURN                                                              *   29
       END                                                                 *   30
```

2.6.99 ROUTINE LSTSQS

```
ROUTINE:  LSTSQS

C   *   LSTSQS                                                          5    1
C                                                                       5    2
      SUBROUTINE LSTSQS(IIJJ)                                           5    3
         COMMON/LSJOMP/IDMP(800)                                        5    4
C LSTSQS PROGRAM                                                        5    5
      INTEGER INDEX                                                     5    6
      INTEGER P                                                         5    7
      INTEGER PV,PS                                                     5    8
      DIMENSION IM(6)                                                   5    9
      DIMENSION ISB(8,8)                                                5   10
      DIMENSION LINK2(175)                                              5   11
      DIMENSION INTS(45)                                                5   12
      DIMENSION CYCLE(8),CYC(8,5)                                       5   13
      DIMENSION BETA(175)                                               5   14
      DIMENSION AE(45),C(45),D(45),TD(45)                               5   15
      DIMENSION DD(45)                                                  5   16
      DIMENSION G(175),Q(175),QQ(175)                                   5   17
      DIMENSION LNDEX(175),INDEX(175),JNDEX(175),BNDEX(175)             5   18
      DIMENSION AMN(175)                                                5   19
      DIMENSION X(175),Y(175)                                           5   20
      DIMENSION FIDEAL(175),CYCL(10),CURV(10),E(1058),ADL(10)           5   21
      DIMENSION LINK(175)                                               5   22
      DIMENSION JO(6),IFAZE(175)                                        5   23
      COMMON /BLK/ ISB,NCYCLE,CYC,YBB(8)                                5   24
      COMMON/BLK2/INTS                                                  5   25
      COMMON/BLK3/PV(262),PS(262)                                       5   26
      COMMON/BLKIF/INTFLG                                               5   27
      COMMON /BLK5/ IPRD, IAT, ITROLY, JLIM(4)                          5   28
      EQUIVALENCE (BETA,G)                                              5   29
      DATA XD/.001/                                                     5   30
      LINF(I)=(I*(I-1))/2                                               5   31
      DO 8800 IIII=1,8                                                  5   32
      IF(ISB(IIII).NE.ISB(1,IIII)) IREPT=1                              5   33
      ISB(IIII)=ISB(1,IIII)                                             5   34
 8800 CONTINUE                                                          5   35
      DO 5500 IIII = 1,IIJJ                                             5   36
      IRNUM=27                                                          5   37
      IF(ISB(1,IIII).EQ.0) GO TO 5500                                   5   38
      CALL LINKD(ISB(1,IIII),INTS,LINK,LNDEX,INDEX,JNDEX,BNDEX,LINK2)   5   39
      DO 2901 I = 1,45                                                  5   40
      IF(INTS(I).EQ.0) GO TO 2902                                       5   41
      NN = I                                                            5   42
 2901 CONTINUE                                                          5   43
 2902 CONTINUE                                                          5   44
      DO 2903 I = 1,175                                                 5   45
      IF(LINK(I).EQ.0) GO TO 2904                                       5   46
      LNKS=I                                                            5   47
 2903 CONTINUE                                                          5   48
 2904 CONTINUE                                                          5   49
      IRNUM=27                                                          5   50
C INSERT START-UP AND SORTING                                           5   51
      KMIN=1                                                            5   52
      IX=0                                                              5   53
         JDMP=-8                                                        5   54
      DO 2930 IS= 1,LNKS                                                5   55
      I = INDEX(IS)                                                     5   56
      IF(I.LE.0) GO TO 2930                                             5   57
      J = JNDEX(IS)                                                     5   58
      IF(J.LE.0) GO TO 2930                                             5   59
      IX=IX+1                                                           5   60
      LNDEX(IX) = LNDEX(IS)                                             5   61
      INDEX(IX) = INDEX(IS)                                             5   62
      JNDEX(IX) = JNDEX(IS)                                             5   63
      BNDEX(IX) = BNDEX(IS)                                             5   64
      L1 = LINK(IS)                                                     5   65
      L2 = LINK2(IS)                                                    5   66
      IF(L1.EQ.0) GO TO 2900                                            5   67
      IF(L2.EQ.0) GO TO 2900                                            5   68
      CALL LDMBES(L1,IV8L,ISPEED,I8CC)                                  5   69
      CALL LLGTHF(L2,LGTH,IFZE,LIMF,MSP)                                5   70
      FLNGT=LGTH                                                        5   71
      IF( IPRD .EQ. 0 )  GO TO 2905                                     5   72
      IF( PV(L1) .GT. 0)  IV8L = PV(L1)                                 5   73
      IF( PS(L1) .GT. 0)  ISPEED = PS(L1)                               5   74
 2905 CONTINUE                                                          5   75
      IV8L = IV8L + IAT * I8CC                                          5   76
      SPEED=ISPEED                                                      5   77
      V8L=IV8L                                                          5   78
      FLIM=LIMF                                                         5   79
      AMSP=MSP                                                          5   80
      SPEED=SPEED*AMSP/100.                                             5   81
      AMN(IX)=XD*V8L*FLIM                                               5   82
      FIDEAL(IX) = FLNGT/SPEED                                          5   83
      IFAZE(IX)=IFZE                                                    5   84
         IF(JDMP .GT. 780)GOTO 2900                                     5   85
         JDMP=JDMP+9                                                    5   86
         IDMP(JDMP  )=L1                                                5   87
         IDMP(JDMP+1)=L2                                                5   88
         IDMP(JDMP+2)=INTS(I)                                           5   89
         IDMP(JDMP+3)=INTS(J)                                           5   90
         IDMP(JDMP+4)=V8L*100.                                          5   91
         IDMP(JDMP+5)=SPEED*100.                                        5   92
         IDMP(JDMP+6)=FLIM*100.                                         5   93
         IDMP(JDMP+7)=AMN(IX)*100.                                      5   94
         IDMP(JDMP+8)=FIDEAL(IX)*100.                                   5   95
 2900 CONTINUE                                                          5   96
      KMAX=IX                                                           5   97
      KSAVE=KMAX                                                        5   98
      IXX=IX                                                            5   99
```

```
      IX=0                                                              5  100
      DO 2999 IS= 1,LNKS                                                5  101
      IIX=0                                                             5  102
      I = INDEX(IS)                                                     5  103
      IF(I.LE.0) GO TO 2999                                             5  104
      J = JNDEX(IS)                                                     5  105
      IF(J.LE.0) GO TO 2999                                             5  106
      IX=IX+1                                                           5  107
      DO 2999 ISS=1,LNKS                                                5  108
      I = INDEX(ISS)                                                    5  109
      J = JNDEX(ISS)                                                    5  110
      IF((I.EQ.0).OR.(J.EQ.0)) GO TO 2999                               5  111
      IIX=IIX+1                                                         5  112
      L=LNDEX(IX)                                                       5  113
      I=INDEX(IIX)                                                      5  114
      IF(L.NE.I) GO TO 2999                                             5  115
      I=INDEX(IX)                                                       5  116
      J=JNDEX(IIX)                                                      5  117
      IF(I.NE.J) GO TO 2999                                             5  118
      J=JNDEX(IX)                                                       5  119
      B=BNDEX(IIX)                                                      5  120
      IF(J.NE.0) GO TO 2999                                             5  121
      IXX=IXX+1                                                         5  122
      AMN(IXX) = (AMN(IX)+AMN(IIX))/2.                                  5  123
      FIDEAL(IXX) = FIDEAL(IX) + FIDEAL(IIX)                            5  124
      INDEX(IXX)=LNDEX(IX)                                              5  125
      JNDEX(IXX)=JNDEX(IX)                                              5  126
      IFZD=IFAZE(IX)                                                    5  127
      IFZL=IFAZE(IIX)                                                   5  128
      IFAZE(IXX)=MOD(IFZD+3)+3*(IFZD/3)                                 5  129
 2999 CONTINUE                                                          5  130
      KMAXS=IXX                                                         5  131
      KMAX=KMAXS                                                        5  132
 3000 CONTINUE                                                          5  133
      JCYCLE = NCYCLE(IIII)                                             5  134
      DO 3010 JJJJ = 1,JCYCLE                                           5  135
      CURV(JJJJ) = CYC(IIII,JJJJ)                                       5  136
 3010 ADL(JJJJ) = 100000.                                               5  137
C MATRIX ASSEMBLY                                                       5  138
      DO 301 II=1,1058                                                  5  139
  301 E(II)=0.0                                                         5  140
      N1=NN+1                                                           5  141
      DO 310 L=1,N1                                                     5  142
      LL=LINF(L)                                                        5  143
      DO 310 K=KMIN,KMAXS                                               5  144
      I=INDEX(K)                                                        5  145
      J=JNDEX(K)                                                        5  146
      IF(I.EQ.L) GO TO 305                                              5  147
      IF(J.NE.L) GO TO 310                                              5  148
      K=I                                                               5  149
  305 LLL=LL+L                                                          5  150
      E(LLL) = E(LLL) + AMN(K)                                          5  151
      IF(J.GT.L) GO TO 310                                              5  152
      LLJ=LL+J                                                          5  153
      E(LLJ) = E(LLJ) +AMN(K)                                           5  154
  310 CONTINUE                                                          5  155
C TRIANGULATION OF MATRIX                                               5  156
      DO 326 I=1,N1                                                     5  157
      LI=LINF(I)                                                        5  158
      DO 325 J=1,I                                                      5  159
      SUM=0.0                                                           5  160
      LJ=LINF(J)                                                        5  161
      IF(J.EQ.1) GO TO 317                                              5  162
      JFIN=J-1                                                          5  163
      DO 315 K=1,JFIN                                                   5  164
      LIK=LI+K                                                          5  165
      LJK=LJ+K                                                          5  166
  315 SUM=SUM+E(LIK)*E(LJK)                                             5  167
  317 LIJ=LI+J                                                          5  168
      IF(I.EQ.J) GO TO 320                                              5  169
      LJJ=LJ+J                                                          5  170
  318 IF(E(LJJ).LE.0.0000001) GO TO 3001                                5  171
  319 E(LIJ)=(E(LIJ)-SUM)/E(LJJ)                                        5  172
      GO TO 325                                                         5  173
  320 IF(E(LII).LT.SUM) GO TO 3002                                      5  174
  321 CONTINUE                                                          5  175
      E(LII)=SUM                                                        5  176
      E(LII)=SQRT(TEMP)                                                 5  177
  325 CONTINUE                                                          5  178
C INVERSE OF LOWER TRIANGLE                                             5  179
      DO 350 I=1,N1                                                     5  180
      LI=LINF(I)                                                        5  181
      LII=LI+I                                                          5  182
  326 IF(E(LII).LE.0.0000001) GO TO 3003                                5  183
  329 PIVOT=1.0/E(LII)                                                  5  184
      IF(I.EQ.1) GO TO 340                                              5  185
      IFIN=I-1                                                          5  186
      DO 335 J=1,IFIN                                                   5  187
      SUM=0.0                                                           5  188
      DO 330 K=J,IFIN                                                   5  189
      LIK=LI+K                                                          5  190
      LKJ=LINF(K)+J                                                     5  191
  330 SUM=SUM+E(LIK)*E(LKJ)                                             5  192
      LIJ=LI+J                                                          5  193
  335 E(LIJ)=-PIVOT*SUM                                                 5  194
  340 E(LII)=PIVOT                                                      5  195
C CALCULATION OF INVERSE OF MATRIX                                      5  196
      DO 350 I=1,N1                                                     5  197
      LI=LINF(I)                                                        5  198
      DO 350 J=1,I                                                      5  199
      SUM=0.0                                                           5  200
      DO 345 K=I,N1                                                     5  201
      LK=LINF(K)                                                        5  202
      LKI=LK+I                                                          5  203
      LKJ=LK+J                                                          5  204
  345 SUM=SUM+E(LKI)*E(LKJ)                                             5  205
```

```
      LIJ=LI+J                                                          5  206
  350 E(LIJ)=SUM                                                        5  207
      LR0=LINF(NN)+1                                                    5  208
      LELMT=LR0+N1                                                      5  209
      DO 380 I=LR0,LELMT                                                5  210
  380 E(I)=0.0                                                          5  211
      DO 3550 K=1,KMAX                                                  5  212
 3550 G(K)=0                                                            5  213
      DO 375 L=1,NN                                                     5  214
      LL=LINF(L)                                                        5  215
      DO 375 K=KMIN,KMAX                                                5  216
 3552 I=INDEX(K)                                                        5  217
      J=JNDEX(K)                                                        5  218
      IF(I.EQ.L) GO TO 360                                              5  219
      IF(J.NE.L) GO TO 375                                              5  220
      J=I                                                               5  221
  360 LLL=LL+L                                                          5  222
      IF(J.GT.L) GO TO 365                                              5  223
      LLL=LL+J                                                          5  224
      GO TO 370                                                         5  225
  365 LLJ=LINF(J)+L                                                     5  226
  370 CONTINUE                                                          5  227
      G(K) = G(K)+E(LLJ)*E(LLL)                                         5  228
  375 CONTINUE                                                          5  229
C**** COMPUTE X(MN)                                                     5  230
      DO 379 K=KMIN,KMAX                                                5  231
      X(K)=0                                                            5  232
      S=AM(K)*BETA(K)+1                                                 5  233
      X(K)=X(K)*AMN(K)*S                                                5  234
      X(K)=X(K)*X(K)                                                    5  235
  379 CONTINUE                                                          5  236
      I9P=0                                                             5  237
  390 CONTINUE                                                          5  238
C     TEST LIST OF SIGNAL CYCLES                                        5  239
      DO 5250 JJJ=1,JCYCLE                                              5  240
      SCL=1./CURV(JJJ)                                                  5  241
      DO 4510 K=KMIN,KMAXS                                              5  242
      DO 4511 KIJJ=1,4                                                  5  243
      I9(K,JJJ)=0                                                       5  244
 4511 CONTINUE                                                          5  245
      IUP=INDEX(K)                                                      5  246
      I9(1)=INTS(IUP)                                                   5  247
      IDN=JNDEX(K)                                                      5  248
      I9(2)=INTS(IDN)                                                   5  249
      I9(3)=IFAZE(K)                                                    5  250
      I9(4)=CURV(JJJ)                                                   5  251
      CALL CORRECT(I9,ICORR)                                            5  252
      FICOR=ICORR                                                       5  253
      X(K)=SCL*(FIDEAL(K)+FICOR/2.)                                     5  254
 4510 CONTINUE                                                          5  255
C SET UP FIRST GAME                                                     5  256
      EPSI=.00001                                                       5  257
      IRNDM=2*IRNDM+1                                                   5  258
      DLYMN = 1.0E+35                                                   5  259
C PLAY SERIES OF GAMES                                                  5  260
      NGAMES=15                                                         5  261
      DO 790 M=1,NGAMES                                                 5  262
      DO 450 K=1,KMAXS                                                  5  263
      GG(K)=G(K)                                                        5  264
  450 CONTINUE                                                          5  265
      DO 460 I=1,NN                                                     5  266
      IRN=2051*IRNDM                                                    5  267
      IRNDM=MOD(IRN,4194304)                                            5  268
      RNDMX=IRNDM                                                       5  269
      TD(I) = RNDMX / 4194304.                                          5  270
    *   C(I)=0.0                                                        5  271
  460 D(I)=0.0                                                          5  272
      TD(NN)=0.0                                                        5  273
C TRANSFORM TO STARTING POINT                                           5  274
      DO 560 K=KMIN,KMAXS                                               5  275
      I=INDEX(K)                                                        5  276
      J=JNDEX(K)                                                        5  277
      T1=GG(K)*TD(I)-TD(J)                                              5  278
      IF(T1)530,550,540                                                 5  279
  510 T1=T1+1.0                                                         5  280
  520 IF(T1-.5)510,550,550                                              5  281
  530 T1=T1+1.0                                                         5  282
  540 IF(T1-.5)550,530,530                                              5  283
  550 GG(K)=T1                                                          5  284
      C(I) = C(I)+AMN(K)*T1                                             5  285
      C(J) = C(J)+AMN(K)*T1                                             5  286
  560 CONTINUE                                                          5  287
      ITERS=0                                                           5  288
C OPTIMIZE IN GIVEN REGION                                              5  289
      DO 590 I=1,NN                                                     5  290
      LI=LINF(I)                                                        5  291
      DO 585 J=1,NN                                                     5  292
      IF(J.GT.I) GO TO 580                                              5  293
      LIJ=LI+J                                                          5  294
      GO TO 583                                                         5  295
  580 LIJ=LINF(J)+I                                                     5  296
  583 CONTINUE                                                          5  297
      D(I)=D(I)+E(LIJ)*C(J)                                             5  298
  585 CONTINUE                                                          5  299
      TD(I)=TD(I)+D(I)                                                  5  300
  590 CONTINUE                                                          5  301
      CHMAXL=0.0                                                        5  302
C TRANSFORM TO LOCAL OPTIMUM                                            5  303
  620 DO 630 K=KMIN,KMAXS                                               5  304
      I=INDEX(K)                                                        5  305
      J=JNDEX(K)                                                        5  306
      GG(K)=GG(K)+D(I)-D(J)                                             5  307
  630 CONTINUE                                                          5  308
C SEARCH FOR NEIGHBOR OPTIMA                                            5  309
  635 CHMAX=0.0                                                         5  310
      DO 650 K=KMIN,KMAX                                                5  311
```

```
      KK=K-KMIN+1                                                       5  312
      Y(KK)=AMN(KK)*QQ(KK)                                              5  313
  640 CONTINUE                                                          5  314
      S=Y(KK)                                                           5  315
      CHDLY=A(KK)=ABS(S)                                                5  316
      IF(CHDLY.GE.CHMAX) GO TO 650                                      5  317
      MAXK=K                                                            5  318
      CHMAX=CHDLY                                                       5  319
  650 CONTINUE                                                          5  320
      IF(CHMAX.GE.(.=EPSI)) GO TO 705                                   5  321
      IF(CHMAX.GE.CHMAXL) GO TO 662                                     5  322
      CHMAXL=CHMAX                                                      5  323
  662 BITERS=ITERS+50                                                   5  324
      IF(BITERS.LE.0.0) GO TO 668                                       5  325
      CITERS=ITERS+100                                                  5  326
      DITERS=ITERS+150                                                  5  327
      S=EPSI*BITERS                                                     5  328
      IF(CHMAX.GE.S) GO TO 705                                          5  329
      S=EPSI*CITERS*CHMAXL                                              5  330
      IF(CHMAX.GE.S) GO TO 705                                          5  331
      SS=ABS(DITERS)                                                    5  332
      S=SS*EPSI*DITERS*CHMAXL                                           5  333
      IF(CHMAX.GE.S) GO TO 705                                          5  334
  668 K=MAXK                                                            5  335
      KK=K-KMIN+1                                                       5  336
      ITERS=ITERS+1                                                     5  337
      S=Y(KK)                                                           5  338
      IF(S.GE.0.0) GO TO 680                                            5  339
  670 EN=1.0                                                            5  340
      GO TO 690                                                         5  341
  680 EN=-1.0                                                           5  342
  690 QQ(KK)=QQ(KK)*EN                                                  5  343
      DO 6913 L=1,NN                                                    5  344
 6913 DD(L)=0.0                                                         5  345
      AMNP=AMN(K)*EN                                                    5  346
      I=INDEX(K)                                                        5  347
      J=JNDEX(K)                                                        5  348
      DO 700 L=1,NN                                                     5  349
      IF(J.GT.L) GO TO 692                                              5  350
      LLJ=LINF(L)+J                                                     5  351
      GO TO 694                                                         5  352
  692 LLJ=LINF(J)+L                                                     5  353
  694 IF(I.GT.L) GO TO 696                                              5  354
      LLI=LINF(L)+I                                                     5  355
      GO TO 698                                                         5  356
  696 LLI=LINF(I)+L                                                     5  357
  698 CONTINUE                                                          5  358
      S=AMNP*(E(LLJ)+E(LLI))                                            5  359
      DD(L)=DD(L)+S                                                     5  360
      D(L)=DD(L)                                                        5  361
      TD(L)=TD(L)+S                                                     5  362
  700 CONTINUE                                                          5  363
      GO TO 820                                                         5  364
C COMPUTE FINAL DELAY                                                   5  365
  705 DELAY=0.0                                                         5  366
      DO 708 K=KMIN,KMAXS                                               5  367
  708 DELAY = DELAY + AMN(K)*QQ(K)*QQ(K)                                5  368
      S=ADL(JJJ)                                                        5  369
      IF(DELAY.LT.S) ADL(JJJ)=DELAY                                     5  370
C STANDARDIZE D(I)                                                      5  371
      DO 740 I=1,NN                                                     5  372
      T1=TD(I)                                                          5  373
  711 IF(T1)720,740,730                                                 5  374
  720 T1=T1+5.0                                                         5  375
      GO TO 711                                                         5  376
  730 T1=AMOD(T1,1.0)                                                   5  377
  740 D(I)=T1                                                           5  378
      IF(DLYMN.LT.0.00001) GO TO 903                                    5  379
      T1=(DELAY-DLYMN)/DLYMN                                            5  380
      GO TO 904                                                         5  381
  903 T1=DELAY-DLYMN                                                    5  382
  904 CONTINUE                                                          5  383
      S=ABS(T1)                                                         5  384
      IF(S.LE.0.00001) GO TO 905                                        5  385
      IF(T1.LT.0.0) GO TO 910                                           5  386
  905 IF((N-NBMIN).GE.9) GO TO 792                                      5  387
      GO TO 790                                                         5  388
  910 NBMIN=N                                                           5  389
      DLYMN=DELAY                                                       5  390
      DO 754 K=1,NN                                                     5  391
  754 AE(K)=D(K)                                                        5  392
  790 CONTINUE                                                          5  393
  792 CONTINUE                                                          5  394
      IF(I8P.EQ.1) GO TO 5440                                           5  395
 5250 CONTINUE                                                          5  396
      JM=JCYCLE                                                         5  397
      XMN=10.E+10                                                       5  398
      DO 5310 J=1,JM                                                    5  399
      S=ADL(J)*CURV(J)**2                                               5  400
      IF(XMN.LE.S) GO TO 5310                                           5  401
      XMN=S                                                             5  402
      CL = CURV(J)                                                      5  403
 5310 CONTINUE                                                          5  404
      CURV(1)=CL                                                        5  405
      I8P=1                                                             5  406
      GO TO 390                                                         5  407
 5440 I8P=0                                                             5  408
      DO 5050 IS = 1,NN                                                 5  409
      ICNT=INTS(IS)                                                     5  410
      I8(1)=CL                                                          5  411
      I8(2)=AE(IS)*CL+0.5                                               5  412
      I8(3)=IIII                                                        5  413
      CALL LOADAT(ICNT,I8)                                              5  414
 5050 CONTINUE                                                          5  415
C                                                                       5  416
C     ENTRY INTO LOADAT TO OPTIMIZE OPERATOR ENTERED OFFSETS            5  417
```

```
C                                                                       5  418
      CALL LOADAT(*NN, INTS)                                            5  419
      GO TO 5500                                                        5  420
 3003 CONTINUE                                                          5  421
 3002 CONTINUE                                                          5  422
 3001 CONTINUE                                                          5  423
      CALL OBUSLV3(6)                                                   5  424
 5500 CONTINUE                                                          5  425
      RETURN                                                            5  426
      END                                                               5  427
```

2.6.100 SUBROUTINE CORRECT

```
ROUTINE:  CORRECT

C    *    CORRECT                                                                  8    1
       SUBROUTINE CORRECT(ITB,ICORR)                                               8    2
       DIMENSION ITB(4),IPH(2),FAC(2)                                              8    3
       COMMON /BLK7 /AVGI(16)     , INTHI(31)   , INTZI(31)                        8    4
      * KCTC(17),K3PHI(31),STUPF,NGL(31)                                           8    5
       COMMON /G2CONT/ NRKOFS(124),IB(124),IEA(31),ENTCYC(31),SPLIT(124),          8    6
      1 CORPM(31)                                                                  8    7
       COMMON /PATNO/ ABCSTRT(124),ABCEND(124),BIAS(31),DELT(31),                  8    8
      1 SMTABL(124),SABC(124),SUMACRC(31)                                          8    9
C   COMPUTE CORRECTION FACTOR FOR PHASE CONNECTION OTHER THAN A = A                8   10
       IPH(2)=MOD(ITB(3),3)                                                        8   11
       IPH(1)=ITB(3)/3                                                             8   12
       DO 100 I=1,2                                                                8   13
       FAC(I)=0.                                                                   8   14
       IF(IPH(I).EQ.0) GO TO 100                                                   8   15
       IDX=ITB(I)                                                                  8   16
       JDX=4*(IDX-1)+1                                                             8   17
       CALL GETBY(SMTABC,JDX+3,IFX)                                                8   18
C       GET CYCLE LENGTH  (GREEN TIME ONLY)                                        8   19
       ICL=2*ITB(4)+IFX                                                            8   20
       CALL GETBY(K3PHI,IDX,K3P)                                                   8   21
C      COMPUTE A = PHASE DURATION                                                  8   22
       INX=2*(IDX-1)+1                                                             8   23
       CALL HALF(SPLIT,INX,ISPL)                                                   8   24
       AA=ISPL*ICL                                                                 8   25
       CALL GETBY(SMTABC,JDX,ISM)                                                  8   26
       APH=AA/1000.+ISM                                                            8   27
       FAC(I)=APH                                                                  8   28
       IF(IPH(I).EQ.1) GO TO 10D                                                   8   29
       IF(K3P.GT.1) GO TO 20                                                       8   30
       CALL HALF(SPLIT,INX+1,JSPL)                                                 8   31
       BA=JSPL*ICL                                                                 8   32
       BB=ICL-(AA+BA)/1000.                                                        8   33
       CALL GETBY(SMTABC,JDX+1,JSM)                                                8   34
C    COMPUTE B = PHASE DURATION                                                    8   35
       BPH=BB+JSM                                                                  8   36
       FAC(I)=FAC(I)+BPH                                                           8   37
       GO TO 100                                                                   8   38
   20  CALL GETBY(DELT,IDX,IDLT)                                                   8   39
C    LOOK AT OVERLAPPING PHASES                                                    8   40
       FAC(I)=0.                                                                   8   41
       IF(IDLT.GT.128) GO TO 30                                                    8   42
       FAC(I)=IDLT                                                                 8   43
   30  IF(K3P.EQ.2) GO TO 100                                                      8   44
       FAC(I)=FAC(I)+APH                                                           8   45
  100  CONTINUE                                                                    8   46
       ICORR=FAC(2)-FAC(1)                                                         8   47
       RETURN                                                                      8   48
       END                                                                         8   49
```

2.6.101 SUBROUTINE LINKD

```
ROUTINE:  LINKD

      C   *   LINKD                                                          6    1
          SUBROUTINE LINKD(ISB,INT,LNK,LNDX,INDX,JNDX,KNDX,LNK2)            6    2
          DIMENSION ISB(1),INT(45),LNK(175),LNDX(175),INDX(175),JNDX(175),  6    3
         1 KNDX(175),LNK2(175),ISBN(5)                                      6    4
          COMMON /S2DAT/ GCONTSI(31),GCNTSI(2),GRPN5(2),NCIGRP(2),N2GCL(2),  6    5
         1 NICIGR(2),NCR,NL,NGRPS                                           6    6
          COMMON /S2LINK/ LINKL(131),LINKHT(66),IALPH(66),GICNK(66),        6    7
         1 LMN6(462),GC2LSI(2)                                              6    8
          DO 10 I=1,45                                                      6    9
          INT(I)=0                                                          6   10
       10 CONTINUE                                                          6   11
          DO 20 I=1,175                                                     6   12
          LNK(I)=0                                                          6   13
          LNDX(I)=0                                                         6   14
          INDX(I)=0                                                         6   15
          JNDX(I)=0                                                         6   16
          KNDX(I)=0                                                         6   17
          LNK2(I)=0                                                         6   18
       20 CONTINUE                                                          6   19
          ICT=0                                                             6   20
          DO 40 I=1,5                                                       6   21
          IF(ISB(I).EQ.0) GO TO 40                                          6   22
          ISBN(I)=ISB(I)                                                    6   23
          ICT=I                                                             6   24
       30 CONTINUE                                                          6   25
       40 JST=0                                                             6   26
          DO 60 I=1,ICT                                                     6   27
          II=ISBN(I)                                                        6   28
          CALL GETBY(NCIGRP,II,IGN)                                         6   29
          CALL GETBY(GCNTSI,II,IST)                                         6   30
          DO 50 J=1,IGN                                                     6   31
          II=IST+J                                                          6   32
          CALL GETBY(LCONT,II,IND)                                          6   33
          JST=JST+1                                                         6   34
          INT(JST)=IND                                                      6   35
       50 CONTINUE                                                          6   36
       60 CONTINUE                                                          6   37
      C   TABLE INT NOW CONTAINS NODES IN SUB NET+BRK                       6   38
      C    NOW GET LINKS                                                   6   39
          NLK=0                                                             6   40
          DO 80 I=1,ICT                                                     6   41
          II=ISBN(I)                                                        6   42
          CALL GETBY(N2GCL,II,LNKT)                                         6   43
          CALL GETBY(GC2LSI,II,IST)                                         6   44
          DO 70 J=1,LNKT                                                    6   45
          II=IST+J                                                          6   46
          CALL GETBY(S1LNK,II,LN1)                                          6   47
          NLK=NLK+1                                                         6   48
          LNK(NLK)=LN1                                                      6   49
          LNK2(NLK)=I                                                       6   50
          JJ=4*(II-1)+1                                                     6   51
          CALL GETBY(LMN6,JJ,LNDX(NLK))                                     6   52
          CALL GETBY(LMN6,JJ+1,INDX(NLK))                                   6   53
          CALL GETBY(LMN6,JJ+2,JNDX(NLK))                                   6   54
          CALL GETBY(LMN6,JJ+3,KNDX(NLK))                                   6   55
       70 CONTINUE                                                          6   56
       80 CONTINUE                                                          6   57
      C   INDEX TABLES NOW CONTAIN NODE NUMBERS                            6   58
      C    NOW CONVERT NODE NUMBERS TO NODE INDICES                        6   59
          DO 100 I=1,NLK                                                    6   60
          JJ=LNDX(I)                                                        6   61
          CALL SRCH(JJ,INT,JST)                                             6   62
          LNDX(I)=JJ                                                        6   63
          JJ=INDX(I)                                                        6   64
          CALL SRCH(JJ,INT,JST)                                             6   65
          INDX(I)=JJ                                                        6   66
          JJ=JNDX(I)                                                        6   67
          CALL SRCH(JJ,INT,JST)                                             6   68
          JNDX(I)=JJ                                                        6   69
          JJ=KNDX(I)                                                        6   70
          CALL SRCH(JJ,INT,JST)                                             6   71
          KNDX(I)=JJ                                                        6   72
      100 CONTINUE                                                          6   73
          RETURN                                                            6   74
          END                                                               6   75
```

2.6.102 SUBROUTINE LLGTHF

```
ROUTINE:  LLGTHF     LINK DATA

      C  *   LLGTHF     LINK DATA                                          62    1
             SUBROUTINE LLGTHF(L2,LGT,IFZ,LIM,MSP)                         62    2
             COMMON /G2_INK/ LINKL(1311),LINKHT(66),IALPH(66),G1ENK(66)/   62    3
            1 LMN8(282),SCELSI(2)                                          62    4
             COMMON /SPALT/ JALPH(60)                                      62    5
             DATA MULT/175/                                                62    6
             CALL HALF(LINKL,L2,LGT)                                       62    7
             CALL GETBY(LINKHT,L2,IFZ)                                     62    8
             CALL GETBY(IALPH,L2,LIM)                                      62    9
             CALL GETBY(JALPH,L2,MM)                                       62   10
             MSP=MM*MULT/100                                               62   11
             RETURN                                                        62   12
             END                                                           62   13
```

2.6.103 SUBROUTINE LOADAT

```
ROUTINE:  LOADAT   -  LOAD OFFSETS AND VARIABLE INTERVALS


      C   -   LOADAT   -  LOAD OFFSETS AND VARIABLE INTERVALS                    9    1
          SUBROUTINE LOADAT(INT,JTB)                                             9    2
          DIMENSION JTB(3)                                                       9    3
          COMMON /BLK7 /A0GI(18)     , INPH(16)     , INT2I(31)  ,               9    4
         * KCTC(17),K3PHI(31),STUFF,NGL(3)                                       9    5
          COMMON /BLK14/  CLENG          , DTLNG        , CMLNG        ,        9    6
         * DUMY1, DUMY2, CNTLN(572),EMPTL(3),                                    9    7
         * KGL(17), KCTF(17), KCSF(17),                                          9    8
         * NMVAR(31)    , SEMSK(8)     , VRINT(123)  , LKPTR(64)               9    9
          COMMON /BLK18/  CICTF(8)     , CIODF(8)     , STBYD(8)    ,          9   10
         * CNTB(62)     , CURRF(31)    , CYCLC(31)   , ENINT(496)  ,          9   11
         * ENOFF(31)    , GGST(124)    , GAWTP(31)   , GBWTP(31)   ,          9   12
         * GLABC(124)   , GGGG(124)    , GUABC(124)  , INTOJ(496)  ,          9   13
         * SSSS(124)    , YKM(31)      , WRKBF(31)                            9   14
          COMMON /S2CONT/ WRKBFS(124),IB(124),IEA(31),ENTCYC(31),SPLIT(124),     9   15
         1 CURPN(31)                                                           9   16
          COMMON /PATNG/ ABCSTRT(124),ABCEND(124),BIAS(31),DELT(31),            9   17
         1 SMTABL(124),SABC(124),SUMACBC(31)                                   9   18
          COMMON /HOLDSG/ SURCON(124), HLDSPL(4), HLDOFF(4),IGATEM,IGPTEM,      9   19
         1 OFFBP(124)                                                          9   20
          INTEGER SURCON, HLDSPL, HLDOFF, OFFBP                                 9   21
          IF (INT .LT. 0)  GO TO 100                                            9   22
          ICL=2*JTB(1)                                                          9   23
          IA0F=2*JTB(2)                                                         9   24
          IC0F=0                                                                9   25
          IN2=2*(INT-1)+I                                                       9   26
          IN4=4*(INT-1)+1                                                       9   27
          IN16=16*(INT-1)+1                                                     9   28
          CALL GETBY(BIAS,INT,IBS)                                              9   29
          IF(IBS.GT.128) IBS=128-IBS                                            9   30
          JJ=IA0F+IBS                                                           9   31
          DO 10 I=1,17                                                          9   32
          ITC=I                                                                 9   33
          IF(ICL.EQ.KCL(I)) GO TO 20                                            9   34
       10 CONTINUE                                                              9   35
          ITC=8                                                                 9   36
          ICL=KCL(ITC)                                                          9   37
       20 CONTINUE                                                              9   38
          ITC=ITC-1                                                             9   39
          CALL PKBYT(ENTCYC,INT,ITC)                                            9   40
          IF(JJ.LT.0) JJ=JJ+ICL                                                 9   41
          IF(JJ.GE.ICL) JJ=JJ-ICL                                               9   42
      C   STORE OFFSET                                                         9   43
          CALL PKBYT(WRKBF,INT,JJ)                                              9   44
      C   GET CONTROLLER TYPE                                                  9   45
          CALL GETBY(K3PHI,INT,K3P)                                             9   46
      C   GET A PHASE SPLIT                                                     9   47
          CALL HALF(SPLIT,IN2,IASP)                                             9   48
      C   GET TOTAL TIME NOT PART OF PHASES                                     9   49
          CALL GETBY(SMTABC,IN4+3,IFX)                                          9   50
      C   COMPUTE AVAILABLE GREEN TIME                                          9   51
          JCL=ICL-IFX                                                           9   52
      C   COMPUTE A PHASE GREEN TIME                                            9   53
          IAPH=(JCL*IASP+500)/1000                                              9   54
      C   A PHASE VARIABLE INTERVAL                                             9   55
          CALL GETBY(VRINT,IN4,IAV)                                             9   56
         *JAV=IN16+IAV                                                          9   57
      C   GET SUM OF FIXED INTERVALS IN A PHASE                                 9   58
          CALL GETBY( SABC, IN4, IAFX)                                          9   59
           IF( K3P .EQ. 2)  CALL GETBY( SUMACBC, INT, IAFX)                     9   60
          IAPV=IAPH-IAFX                                                        9   61
      C   STORE A PHASE VARIABLE INTERVAL VALUE                                9   62
          CALL PKBYT(ENINT,JAV,IAPV)                                            9   63
          CALL GETBY(SMTABC,IN4,IFNA)                                           9   64
          IAJ=IAPH+IFNA                                                         9   65
      C   COMPUTE B PHASE OFFSET                                               9   66
          IB0F=IA0F+IAJ                                                         9   67
          IF(IB0F.GE.ICL) IB0F=IB0F-ICL                                         9   68
      C   GET LOAD FLAG                                                        9   69
          CALL GETBY(IB,IN4+3,ILDF)                                             9   70
          GO TO (30,40,50,60),K3P+1                                             9   71
      C     TYPE 1 CONTROLLER                                                   9   72
       30 CONTINUE                                                              9   73
      C   B PHASE DURATION                                                      9   74
          IBPH=JCL-IAPH                                                         9   75
          CALL GETBY(SABC,IN4+1,IBFX)                                           9   76
          IF( K3P .EQ. 3)  CALL GETBY( SUMACBC, INT, IBFX)                      9   77
      C   COMPUTE B PHASE VARIABLE INTERVAL                                    9   78
          IBPV=IBPH-IBFX                                                        9   79
          CALL GETBY(VRINT,IN4+1,IBV)                                           9   80
          JBV=IN16+IBV                                                          9   81
      C   STORE B PHASE VARIABLE INTERVAL DURATION                              9   82
          CALL PKBYT(ENINT,JBV,IBPV)                                            9   83
          IF(ILDF.EQ.0) GO TO 35                                                9   84
          CALL PKBYT(WRKBF,INT,IB0F)                                            9   85
       35 CONTINUE                                                              9   86
          CALL PKBYT(IA,IN4,IA0F)                                               9   87
          CALL PKBYT(IB,IN4+1,IB0F)                                             9   88
          CALL PKBYT(IB,IN4+2,IC0F)                                             9   89
          CALL PKBYT(IEA,INT,JTB(3))                                            9   90
          IF(K3P .EQ. 1)CALL GETCL(ICL)                                         9   91
          CALL PKBYT(GGST,IN4,JCL)                                              9   92
          RETURN                                                                9   93
      C   TYPE 1 CONTROLLER     THREE PHASE OVERLAPPING PHASES                  9   94
       40 CONTINUE                                                              9   95
      C   B PHASE SPLIT                                                         9   96
          CALL HALF(SPLIT,IN2+1,ICSP)                                           9   97
```

```
      ICPH=(JCL*ICSP+500)/1000                                          99
      IBPH=JCL*IAPH+ICPH                                                99
      CALL GETBY(VRI,TA,IN+2,ICV)                                       100
C     C PHASE VARIABLE INTERVAL                                         101
      JCV=IN16+ICV                                                      102
      CALL GETBY(SABC,IN+2,ICFX)                                        103
      ICPV=ICPH+ICFX                                                    104
      IF(ICPV.LT.0) GO TO 41                                            105
      CALL PKBYT(ENINT,JCV,ICPV)                                        106
   41 CONTINUE                                                          107
C     B = PHASE VARIABLE INTERVAL                                       108
      CALL GETBY(VRI,TA,IN+1,IBV)                                       109
      JBV=IN16+IBV                                                      110
      CALL GETBY(SABC,IN+1,IBFX)                                        111
      IBPV=IBPH+IBFX                                                    112
      CALL PKBYT(ENINT,JBV,IBPV)                                        113
      CALL GETBY(SMTABC,IN+1,IFN2)                                      114
      IC9F=IB0F+IFN2                                                    115
      IF(IC9F.GE.ICL)IC9F=IC0F+ICL                                      116
      GO TO 33                                                          117
C     TYPE 2 CONTROLLER   A/C OVERLAP                                   118
   30 CONTINUE                                                          119
      CALL GETBY(IDELT,INT,IDLT)                                        120
      IF(IDLT.GT.128) IDLT=128+IDLT                                     121
      IC9F=IA0F+IDLT                                                    122
      IF(IC9F.LT.0) IC9F=IC9F+ICL                                       123
      IF(IC9F.GE.ICL) IC9F=IC9F-ICL                                     124
      IF(IDLT.GE.0) GO TO 33                                            125
      IB9F=IC9F+IAD                                                     126
      GO TO 33                                                          127
C       TYPE 3 CONTROLLER   B/C OVERLAP                                 128
   60 CONTINUE                                                          129
      CALL GETBY(IDELT,INT,IDLT)                                        130
      IF(IDLT.LT.128) GO TO 70                                          131
      IDLT=128+IDLT                                                     132
      IB9F=IB0F+IDLT                                                    133
      IF(IB9F.LT.0) IB0F=IB9F+ICL                                       134
      IC9F=IB9F                                                         135
      GO TO 33                                                          136
   70 CONTINUE                                                          137
      IC9F=IB9F+IDLT                                                    138
      GO TO 33                                                          139
  100 DO 130  INOLD=1,4NN                                               140
C       GET CONTROLLER NUMBER                                           141
      ICON = JTB(INOLD)                                                 142
C       IS HLOOFF FLAG SET FOR THIS CONTROLLER                          143
      CALL GETBIT( HLOOFF, ICON, ITEM, 0)                               144
      IF (ITEM .EQ. 0)  GO TO 130                                       145
C       HLOOFF IS SET - COMPUTE POINTER TO OFFOP AND SURCAN ARRAYS      146
      JTEM = ((ICON-1) * 4) + 1                                         147
C       DETERMINE CYCLE LENGTH                                          148
      CALL GETBY( CYCLC, ICON, ITEM)                                    149
      IHCYC = 0.5 * KCL(ITEM)                                           150
C       EVALUATE POSSIBLE OFFSETS FROM 0 TO CYCLE LENGTH + 1            151
      MIN = 10000                                                       152
      DO 120  KTEM = 1, KCL(ITEM)                                       153
      ISUM = 0                                                          154
      DO 110  LTEM = 1,4                                                155
      CALL GETBY( SURCON, (KTEM+LTEM), ISURCN)                          156
      IF (ISURCN .EQ. 0)  GO TO 111                                     157
C       GET CURRENT OFFSET OF NEIGHBOR CONTROLLER                       158
      CALL GETBY(ENOFF, ISURCN, NOFF)                                   159
C     SUBTRACT DIFFERENCE                                               160
      NOFF = NOFF - (KTEM-1)                                            161
C       INSURE DIFFERENCE BETWEEN +- 0.5 CYCLE LENGTH                   162
      IF (NOFF .GT. IHCYC)  NOFF = NOFF - KCL(ITEM)                     163
      IF (NOFF .LT. -IHCYC)  NOFF = NOFF + KCL(ITEM)                    164
C       SUM DIFFERENCES                                                 165
      ISUM = ISUM + NOFF                                                166
  110 CONTINUE                                                          167
  111 IF (ISUM .GE. MIN)  GO TO 120                                     168
      MIN = ISUM                                                        169
      MB = KTEM - 1                                                     170
  120 CONTINUE                                                          171
      IF (MIN .EQ. 10000)  GO TO 130                                    172
      CALL PKBYT( ENOFF, ICON, MB)                                      173
  130 CONTINUE                                                          174
      RETURN                                                            175
      END                                                               176
```

2.6.104 SUBROUTINE SRCH

```
ROUTINE: SRCH  SEARCH ROUTINE USED BY LINKD

      C   *   SRCH  SEARCH ROUTINE USED BY LINKD                    7    1
          SUBROUTINE SRCH(J,II,N)                                   7    2
          DIMENSION II(45)                                          7    3
          K=0                                                       7    4
          DO 10 I=1,N                                               7    5
          IF(II(I).NE.J) GO TO 10                                   7    6
          K=I                                                       7    7
          GO TO 20                                                  7    8
       10 CONTINUE                                                  7    9
       20 J=K                                                       7   10
          RETURN                                                    7   11
          END                                                       7   12
```

2.6.105 ROUTINE INTFC

```
ROUTINE:  INTFC

C   *   INTFC                                                          10   1
C                                                                      10   2
      SUBROUTINE INTFC                                                 10   3
C     INTERFACE SUBROUTINE                                             10   4
      INTEGER BFA,PV,PS                                                10   5
      COMMON /BLK1FC/ INTF,NINTFC,NGRPI,INTN,INTN2,LINKN               10   6
      COMMON /BLK3/ PV(262),PS(262)                                    10   7
      COMMON /BLK5/ IFRO                                               10   8
      COMMON /BLK16/  CICTF(6)    ,  CTBOF(6)    ,  STBY3(6)    ,     10   9
     * CBATB(62)    ,  CJRBF(31)   ,  CYCLC(31)   ,  ENINF(*96)  ,     10  10
     * ENBFF(31)    ,  GGGT(124)   ,  GAATP(31)   ,  GBATP(31)   ,     10  11
     * GLABC(124)   ,  GGGG(124)   ,  GUABC(124)  ,  INTDU(*96)  ,     10  12
     * SSSS(124)    ,  TKM(31)     ,  ARKBF(31)                        10  13
      COMMON /BLK7 /ABGI(16)    , INTMI(31)  , INT2I(31)  ,            10  14
     * KETC(17),KJPHI(31),STOPF,NGL(31)                               10  15
      COMMON /BLK14/  CLENG       ,  OTLNG       ,  CMLNJ       ,     10  16
     * DUMY1, DUMY2, CNTLN(372),ENTFL(5),                             10  17
     * KEL(17), KETF(17), KCSF(17),                                   10  18
     * NMVAR(31)    ,  SEMSK(6)    ,  VRINT(123)  ,  KKPTR(64)        10  19
      COMMON /B2LINK/ LINKL(131),LINKT(66),IALPH(66),OTLNK(64),      ,  10  20
     1 LINB(*62),IC2LSI(2)                                           ,  10  21
      COMMON /B2CMNT/ ARKBFS(124),IB(124),IEA(31),ENTCYC(31),SPLIT(124),10  22
     1 CJRPN(31)                                                     ,  10  23
      DIMENSION INTF(5), NINTFC(5),NGRPI(5)                          ,  10  24
      DIMENSION OT(2),IRT(7),A(2),Z9(2),INX(64),ICBRE(2)   ,IBFA(6)  ,  10  25
      DIMENSION INTN(1*),INTN2(1*),LINKN(2*)                         ,  10  26
      COMMON /BLK20/ LEVLBA,SRTN5,END5,END51,*INCTF,MINBF,BPTIME,BPTIN,  10  27
      INTEGER SRTN5,END5,END51,BPTIME,BPTIN                          ,  10  28
C                                                                      10  29
C                                                                      10  30
      DATA*D/*001/                                                     10  31
      DO 500 I = 1,5                                                   10  32
C                                                                      10  33
      IF(INTF(I).EQ.0) GO TO 500                                       10  34
C                                                                      10  35
C                                                                      10  36
C     OBTAIN TIME AND CYCLE LENGTH FOR TWO INTERFACING SUBNETWORKS     10  37
C                                                                      10  38
C                                                                      10  39
C     CYCLE LENGTH AND TIME INTO CYCLE LENGTH FOR SUBNETWORK I         10  40
C                                                                      10  41
      INT = INTN(NGRPI(I))                                             10  42
      CALL GETBY(ENTCYC,INT,JNT)                                       10  43
      CYC=KCL(JNT+1)/2                                                 10  44
      ECYC=KCTC(JNT+1)/2                                               10  45
C     EXTRAPOLATE TIME TO MIDPOINT OF SIGNAL SETTING DURATION          10  46
      ECYC = ECYC +60.* BPTIME/2.0                                     10  47
C     MODULO EXTRAPOLATED TIME                                         10  48
      CALL PERIOD(ECYC,0.,CYC,CYC)                                     10  49
C                                                                      10  50
C     CYCLE LENGTH AND TIME IN CYCLE FOR SUBNETWORK I+1                10  51
C                                                                      10  52
      INT = INTN2(NGRPI(I))                                            10  53
      CALL GETBY(ENTCYC,INT,JNT)                                       10  54
      CYC2=KCL(JNT+1)/2                                                10  55
      ECYC2=KCTC(JNT+1)/2                                              10  56
C     EXTRAPOLATE TIME TO MIDPOINT OF SIGNAL SETTING DURATION          10  57
      ECYC2 = ECYC2 + 60. * BPTIME /2.0                                10  58
C     MODULO EXTRAPOLATED TIME                                         10  59
      CALL PERIOD(ECYC2,0.,CYC2,CYC2)                                  10  60
C                                                                      10  61
C     OBTAIN OFFSET DATA FOR INTERFACE                                 10  62
C                                                                      10  63
      SUMADL =0.                                                       10  64
      SUMA=0.                                                          10  65
C                                                                      10  66
C     OBTAIN PATTERN OFFSETS FOR INTERFACING INTERSECTIONS IN SUBSET I+1 10  67
      INDX = NGRPI(I) +1                                               10  68
      NOBX = NINTFC(I)                                                 10  69
      DO 400 J = 1 , NOBX                                              10  70
      INDX = INDX + 1                                                  10  71
      INT = INTN2(INDX)                                                10  72
      CALL MACA(INT,IRT)                                               10  73
C     XOFS2  = A-PHASE OFFSET                                          10  74
      AOFS2 = IRT(1)                                                   10  75
      XOFSB2 = IRT(2)                                                  10  76
C     SUBTRACT EXTRAPOLATED TIME FROM ENTRY OFFSET THEN MODULO         10  77
      XOFS2 = XOFS2 - ECYC2                                            10  78
      CALL PERIOD( XOFS2,0.,CYC2,CYC2)                                 10  79
C     COMPUTE OFFSET RELATIVE TO SUBNETWORK I CYCLE LENGTH             10  80
      IF(XOFS2.GT.CYC )XOFS2=XOFS2-CYC                                 10  81
C                                                                      10  82
C                                                                      10  83
C     OBTAIN OFFSETS FOR SUBNETWORK I INTERSECTIONS                    10  84
C                                                                      10  85
C     GET PATTERN OFFSETS                                              10  86
      INT = INTN(INDX)                                                 10  87
      CALL MACA(INT,IRT)                                               10  88
C     XOFS      A-PHASE OFFSET                                         10  89
      XOFS = IRT(1)                                                    10  90
      XOFSB = IRT(2)                                                   10  91
C                                                                      10  92
C     COMPUTE IDEALIZED OFFSETS                                        10  93
C                                                                      10  94
      INDP = INDX +2 - 2                                               10  95
C     DO FOR APPROACHING AND DEPARTING LINKS                           10  96
      DO 300 K =1,2                                                    10  97
      INDL = INDP + K                                                  10  98
```

```
      ILNK = LINKN(INDL)                                                10   99
      IF(ILNK.EQ.0)GO TO 300                                            10  100
      CALL LLGTHF(ILNK,LGTH,IFZE,LIMF,MSP)                              10  101
      CALL GETBY(91LNK,ILNK,ILNK1)                                      10  102
      CALL LOMBES(ILNK1,IV0L,ISPEED,IOCC)                               10  103
      IF(IPRO .NE. 1)GOTO 10                                            10  104
      IF(PV(ILNK1) .GT. 0)IV0L=PV(ILNK1)                                10  105
      IF(PS(ILNK1) .GT. 0)ISPEED=PS(ILNK1)                              10  106
   10 CONTINUE                                                          10  107
      V0L = IV0L                                                        10  108
      SPEED = ISPEED                                                    10  109
      FLIM = LIMF                                                       10  110
      A(K) = V0L * FLIM * XD                                            10  111
      FLGTH = LGTH                                                      10  112
      Z8(K) = FLGHT / SPEED                                             10  113
      IFZE = M9D(IFZE,3)                                                10  114
      IF(K.EQ.1.AND.IFZE.EQ.1) X8FS = X8FSB                             10  115
      IF(K.EQ.2.AND.IFZE.EQ.1) X8FS2 = X8FSB2                           10  116
      DEL = X8FS2 - X8FS                                                10  117
      IF(K.EQ.2) DEL = -DEL                                             10  118
      X8FSP = Z8(K) + DEL                                               10  119
      FL0 = .CYC/2.                                                     10  120
      FHI = 1. CYC/2.                                                   10  121
      CALL PERIOS(X8FSP,FL0,FHI,CYC)                                    10  122
      SUMADL = SUMADL + A(K) * X8FSP                                    10  123
      SUMA = SUMA + A(K)                                                10  124
  300 CONTINUE                                                          10  125
  400 CONTINUE                                                          10  126
C                                                                       10  127
C                                                                       10  128
C     INTERFACE PARAMETER                                               10  129
C                                                                       10  130
      S=.5                                                              10  131
      IF(SUMA .NE. 0.0)S=SUMADL/SUMA                                    10  132
C                                                                       10  133
C     DETERMINE CYC GROUPS IN SUBNETWORK I=1                            10  134
      ICYRE(2)=0                                                        10  135
      GO TO(201,202,203,204,205),I                                      10  136
  201 ICYRE(1)=4                                                        10  137
      GO TO 250                                                         10  138
  202 ICYRE(1)=3                                                        10  139
      GO TO 250                                                         10  140
  203 ICYRE(1)=2                                                        10  141
      GO TO 250                                                         10  142
  204 ICYRE(1)=1                                                        10  143
      GO TO 250                                                         10  144
  205 ICYRE(1)=6                                                        10  145
  250 CONTINUE                                                          10  146
C                                                                       10  147
C     OBTAIN INTERSECTION NUMBERS IN SUBNETWORK I=1                     10  148
      DO 200 L=1,2                                                      10  149
      IF(ICYRE(L).EQ.0)GO TO 200                                        10  150
      IICYRE = ICYRE(L)                                                 10  151
      CALL GETINT(IICYRE,INX)                                           10  152
      DO 100 M = 1,4                                                    10  153
      IF(INX(M).EQ.0) GO TO 200                                         10  154
C     GET ADDRESS OF SET FOR EACH INTERSECTION                          10  155
      INTER = INX(M)                                                    10  156
      CALL FACA(INTER,IRT)                                              10  157
      DO 50 KLP = 1,3                                                   10  158
      X8FA = IRT(KLP) + .5 *60. * 8PTIME/.                              10  159
      CALL PERIOS(X8FA,0,CYC2,CYC2)                                     10  160
      IRFA(KLP) = X8FA +.5                                              10  161
   50 CONTINUE                                                          10  162
      CALL PUTEMFF(INTER,IRFA)                                          10  163
  100 CONTINUE                                                          10  164
  200 CONTINUE                                                          10  165
  500 CONTINUE                                                          10  166
      RETURN                                                            10  167
      END                                                               10  168
```

2.6.106 SUBROUTINE GETINT

ROUTINE: GETINT

```
C   *   GETINT                                                          14    1
      SUBROUTINE GETINT(NGROUP,J)                                       14    2
      DIMENSION J(45)                                                   14    3
      COMMON /G2DAT/ GCONT(31),GCNTS1(2),GRPS(2),NCIGRP(2),N23CL(2),    14    4
     1 NICIGP(2),NCR,NL,NGRPS                                           14    5
C       GETINT EXTRACTS THE NGROUP INTERSECTIONS FROM THE GCONT ARRAY AN 14    6
C         THE INTERSECTION NUMBERS IN THE J ARRAY                       14    7
C       THE INDEX FOR THE START OF THE NGROUP INTERSECTION NUMBERS IS L= 14    8
      CALL GETBY(GCNTS1,NGROUP,L)                                       14    9
C       M IS THE NUMBER OF INTERSECTIONS IN NGROUP                      14   10
      CALL GETBY(NCIGRP,NGROUP,M)                                       14   11
C       PUT THE M INTERSECTION NUMBERS IN THE J ARRAY                   14   12
      DO 5 I = 1,45                                                     14   13
      J(I) = 0                                                          14   14
    5 CONTINUE                                                          14   15
      DO 10 I=1,M                                                       14   16
      CALL GETBY(GCONT,L+I,J(I))                                        14   17
   10 CONTINUE                                                          14   18
      RETURN                                                            14   19
      END                                                               14   20
```

2.6.107 SUBROUTINE MACA

ROUTINE: MACA

```
C   *   MACA                                                                12    1
      SUBROUTINE MACA(INT,IBUT)                                             12    2
      DIMENSION IBUT(7)                                                     12    3
      COMMON /BLK7 /ABGI(16)    , INTHI(31)   , INT2I(31)                   12    4
     * KCTC(17),K3PHI(31),STUPF,NQL(31)                                     12    5
      COMMON /BLK14/  CLENG       , DTLNG       , CMLNG                     12    6
     * DUMY1, DUMY2, CNTLN(372),ENTFL(5),                                   12    7
     * KCL(17), KCTF(17), KCSF(17),                                         12    8
     * AMVAR(31)   , SEMSK(8)    , VRINT(123)  , LKPTR(64)                 12    9
      COMMON /GBCMNT/ WRKBFS(124),IB(124),IEA(31),ENTCYC(31),SPLIT(124),    12   10
     1 CORPL(31)                                                            12   11
      IDX=4*(INT-1)                                                         12   12
      DO 10 I=1,3                                                           12   13
      JDX=IDX+I                                                             12   14
      CALL GETBY(IB,JDX,IBF)                                                12   15
      IBUT(I)=IBF/2                                                         12   16
   10 CONTINUE                                                              12   17
      CALL GETBY(ENTCYC,INT,II)                                             12   18
      IBUT(5)=KCL(II)/2                                                     12   19
      CALL GETBY(K3PHI,INT,IJ)                                              12   20
      IBUT(4)=IJ                                                            12   21
      IDX=2*(INT-1)                                                         12   22
      DO 20 I=1,2                                                           12   23
      JDX=IDX+I                                                             12   24
      CALL HALF(SPLIT,JDX,ISP)                                              12   25
      IBUT(I+5)=ISP                                                         12   26
   20 CONTINUE                                                              12   27
      RETURN                                                                12   28
      END                                                                   12   29
```

2.6.108 SUBROUTINE PERIO5

```
ROUTINE: PERI05

      C   *   PERI05                                                    57    1
      C                                                                57    2
          SUBROUTINE PERI05(X,LLC,ULC,CY)                              57    3
          REAL LLC                                                     57    4
        1 CONTINUE                                                     57    5
          IF(X-LLC)2,2,3                                               57    6
        2 X=X+CY                                                       57    7
          GO TO 1                                                      57    8
        3 CONTINUE                                                     57    9
          IF(X-ULC)5,5,4                                               57   10
        4 X=X-CY                                                       57   11
          GO TO 3                                                      57   12
        5 CONTINUE                                                     57   13
          RETURN                                                       57   14
          END                                                          57   15
```

2.6.109 SUBROUTINE PUTEOFF

```
ROUTINE:  PUTEOFF

C  *   PUTEOFF                                                          13    1
       SUBROUTINE PUTEOFF(INT,E0FFS)                                    13    2
       INTEGER CLC,CY,E0FFA,E0FFS(3),BI                                 13    3
       COMMON /G2CONT/ WRK0FS(124),I9(124),IEA(31),ENTCYC(31),SPLIT(124), 13   4
      1 CORPN(31)                                                       13    5
       COMMON /PATNG/ ABCSTRT(124),ABCEND(124),BIAS(31),DELT(31),       13    6
      1 SMTABC(124),SABC(124),SUMACRC(31)                               13    7
       COMMON /BLK7 /ABGI(16)    , INTMI(31)  , INT2I(31)  ,            13    8
      * KCTC(17), K3PH(31), STUPF, NQL(31)                              13    9
       COMMON /BLK14/  CLENG       , DTLNG       , CMLNG       ,       13   10
      * DUMY1, DUMY2, CNTLN(372),ENTFL(5),                             13   11
      * KCL(17), KCTF(17), KCSF(17),                                   13   12
      * NMVAR(31)   ,  SEMSK(8)    ,  VRINT(123)  ,  LKPTR(64)         13   13
       COMMON /BLK18/  CICTF(8)    ,  CT0DF(8)    ,  STBYD(8)    ,     13   14
      * CONT0(62)   ,  CUR0F(31)   ,  CYCLC(31)   ,  ENINT(496)  ,     13   15
      * EN0FF(31)   ,  GGGT(124)   ,  GAWTP(31)   ,  GB=TP(31)   ,     13   16
      * GLA0C(124)  ,  GGUG(124)   ,  GUA0C(124)  ,  INTDU(496)  ,     13   17
      * SSSS(124)   ,  TKM(31)     ,  WRK0F(31)                         13   18
C        PUTEOFF MULTIPLIES THE 3 VALUES OF THE SECOND ARGUMENT BY TWO, S 13   19
C          THE SCALED VALUES IN THE I0 ARRAY, COMPUTES THE VALUE OF THE  13   20
C          ENTRY OFFSET, AND STORES THE ENTRY OFFSET VALUE IN THE EN0FF A 13   21
C        SCALE OFFSETS BY TWO AND STORE THEM IN THE I0 ARRAY             13   22
       IP0SN = 4*(INT-1)                                                13   23
       N=3                                                              13   24
       CALL GETBY(K3PH,INT,K3PHT)                                       13   25
       IF(K3PHT.EQ.0) N=2                                               13   26
       DO 10 I=1,N                                                      13   27
       CALL PTBY(I0,IP0SN+I,2*E0FFS(I))                                 13   28
  10   CONTINUE                                                         13   29
       CALL GETBY(ENTCYC,INT,CLC)                                       13   30
       CY=KCL(CLC+1)                                                    13   31
       CALL GETBY(BIAS,INT,BI)                                          13   32
C        ENTRY OFFSET = THE CONTROLLER A PHASE OFFSET + THE CONTROLLER BIA 13   33
       E0FFA = 2*E0FFS(1) + BI                                          13   34
       IF(E0FFA.LT.CY) GO TO 20                                         13   35
       E0FFA = E0FFA - CY                                               13   36
   20  CONTINUE                                                         13   37
       CALL GETBY(I0,IP0SN+4,IF0T)                                      13   38
C        ENTER THE A PHASE ENTRY OFFSET IN THE EN0FF ARRAY, UNLESS K3PH=0 13   39
C          IF0T NOT EQUAL 0, IN WHICH CASE THE B PHASE OFFSET IS ENTERED 13   40
C          EN0FF ARRAY (THE LATTER CASE IS FOR INTERSECTIONS WHERE THE B 13   41
C          BEGINS AT INTERVAL 1)                                         13   42
       IF(K3PHT.EQ.0.AND.IF0T.NE.0) E0FFA = 2*E0FFS(2)                  13   43
       CALL PTBY(EN0FF,INT,E0FFA)                                       13   44
       RETURN                                                           13   45
       END                                                              13   46
```

2.6.110 ROUTINE TRNPAR

```
ROUTINE:  TRNPAR

C   *   TRNPAR                                                          11    1
      SUBROUTINE TRNPAR                                                 11    2
      COMMON /BLK18/  CICTF(6)     , CTBDF(8)     , STBY_(6)     ,      11    3
     * CNNTB(62)     , CURBF(31)    , CYCLC(31)    , ENINT(496)   ,      11    4
     * ENBFF(31)     , GGGT(124)    , GAWTP(31)    , GBATP(31)    ,      11    5
     * GLABC(124)    , GGGG(124)    , GUABC(124)   , INTCU(496)   ,      11    6
     * SSSS(124)     , TKM(31)      , WRKBF(31)                          11    7
      COMMON /BLK7 /ABGI(16)     , INTHI(31)   , INT2I(31)  ,           11    8
     * KCTC(17),A3PHI(31),STUPF,NGL(31)                                 11    9
      COMMON /BLK14/  CLENG          , DTLNG          CMLNG             11   10
     * DUMY1, DUMY2, CNTLN(372),ENTFL(5),                               11   11
     * KCL(17), KCTF(17), KCSF(17),                                     11   12
     * NVAR(31)    , SENSK(3)     , VRINT(123)   , LKPTR(44)           11   13
      COMMON /B2CBNT/ WRKBFS(124),T9(124),TEA(31),ENTCYC(31),SPLIT(124), 11   14
     1 CGRPN(31)                                                        11   15
      COMMON /SECTIN/ ISECT(8)                                          11   16
      DIMENSION INTNB(45),JT(2),JB(7),IEBFF(4)                          11   17
      NBINT = 0                                                         11   18
      SUMDEL = 0.                                                       11   19
C     DO FOR ALL CORE GROUPS                                            11   20
      DO 500 I=1,6                                                      11   21
      IF(ISECT(I).EQ.0) GO TO 500                                       11   22
C                                                                       11   23
C     GET INTERSECTION NUMBERS IN CORE GROUP                            11   24
      CALL GETINT(I,INTNB)                                              11   25
C     OBTAIN TIME INTO CYCLE AND ENTRY CYCLE LENGTH                     11   26
      IJ = INTNB(1)                                                     11   27
      CALL GETBY(ENTCYC,IJ,JI)                                          11   28
      ECYCLE=KCL(JI+1)/2                                                11   29
      ENTT=KCTC(JI+1)/2+10                                              11   30
      CALL PERIOS(ENTT,0.,ECYCLE,ECYCLE)                                11   31
      DO 400 J=1,45                                                     11   32
      IF(INTNB(J).EQ.0) GO TO 500                                       11   33
C                                                                       11   34
C     GET WORKING OFFSET                                                11   35
      CALL GETBY(WRKBF,INTNB(J),IRTN)                                   11   36
      WRKFB=IRTN/2                                                      11   37
C     GET WORKING CYCLE LENGTH AND TIME IN CYCLE                        11   38
      IJ = INTNB(J)                                                     11   39
      CALL GETBY(CYCLC,IJ,JI)                                           11   40
      WCYCLE=KCL(JI+1)/2                                                11   41
      WRKT=KCTC(JI+1)/2                                                 11   42
C     ADD 10 SECONDS TO TIME IN CYCLE LENGTH AND MODULO                 11   43
      WRKT = WRKT + 10.                                                 11   44
      CALL PERIOS(WRKT,0.,WCYCLE,WCYCLE)                                11   45
C     DELTA BETWEEN WORKING CYCLE TIME + 10 AND WORKING OFFSET          11   46
      WRKBFP=WRKT-WRKFB                                                 11   47
      CALL PERIOS(WRKBFP,0.,WCYCLE,WCYCLE)                              11   48
C                                                                       11   49
C     GET ENTRY OFFSET                                                  11   50
      CALL MACA(IJ,JB)                                                  11   51
      IRTN = JB(1)                                                      11   52
      ENTBF = IRTN                                                      11   53
C     DELTA BETWEEN ENTRY CYCLE TIME + 10 AND ENTRY OFFSET              11   54
      ENTBFP = ENTT - ENTBF                                             11   55
      CALL PERIOS(ENTBFP,0.,ECYCLE,ECYCLE)                              11   56
C                                                                       11   57
C     SUM DEL OFFSETS AND NUMBER OF INTERSECTIONS                       11   58
      DELBFF = WRKBFP + ENTBFP                                          11   59
      SUMDEL = SUMDEL + DELBFF                                          11   60
      NBINT = NBINT + 1                                                 11   61
  400 CONTINUE                                                          11   62
  500 CONTINUE                                                          11   63
                                                                        11   64
      COMPUTE TRANSITION PARAMETER                                      11   65
                                                                        11   66
      AMIN=0.                                                           11   67
      IF(NBINT .GT. 0)AMIN=SUMDEL/NBINT                                 11   68
                                                                        11   69
C     ADD TRANSITION PARAMETER TO ALL ENTRY OFFSETS                     11   70
C                                                                       11   71
      DO 800 I=1,6                                                      11   72
      IF(ISECT(I).EQ.0) GO TO 800                                       11   73
C                                                                       11   74
C     GET INTERSECTION NUMBER IN CORE GROUP                             11   75
      CALL GETINT(I,INTNB)                                              11   76
C                                                                       11   77
C     OBTAIN ENTRY CYCLE LENGTH                                         11   78
      IJ = INTNB(1)                                                     11   79
      CALL GETBY(ENTCYC,IJ,JI)                                          11   80
      ECYCLE=KCL(JI+1)/2                                                11   81
C                                                                       11   82
C     GET ENTRY OFFSET FOR EACH INTERSECTION                            11   83
C                                                                       11   84
      DO 700 J = 1,45                                                   11   85
      IF(INTNB(J).EQ.0) GO TO 800                                       11   86
      IJ=INTNB(J)                                                       11   87
      CALL MACA(IJ,JB)                                                  11   88
      DO 600 KKJ=1,3                                                    11   89
      EBFF = JB(KKJ)                                                    11   90
      EBFF = EBFF + AMIN                                                11   91
C     MODULO OFFSET                                                     11   92
      CALL PERIOS(EBFF,0.,ECYCLE,ECYCLE)                                11   93
      IEBFF(KKJ) = EBFF + .5                                            11   94
  600 CONTINUE                                                          11   95
C                                                                       11   96
```

```
C     STORE ENTRY OFFSET                                          11   97
C                                                                 11   98
      CALL PUTE0FF(IJ,IE0FF)                                      11   99
  700 CONTINUE                                                    11  100
  800 CONTINUE                                                    11  101
      RETURN                                                      11  102
      END                                                         11  103
```

2.6.111 SUBROUTINE GETBI, LISTING ALSO INCLUDES:

2.6.112 SUBROUTINE GETBY
2.6.113 SUBROUTINE HALF
2.6.114 SUBROUTINE PKBIT
2.6.117 SUBROUTINE PTBI
2.6.118 SUBROUTINE PTBY
2.6.119 SUBROUTINE PTHLF
2.6.120 SUBROUTINE UNBIT

```
ROUTINE:  GETBY,PTBY,GETBI,PTBI,HALF,PTHLF,UNBIT,PKBIT

      *   *   GETBY,PTBY,GETBI,PTBI,HALF,PTHLF,UNBIT,PKBIT                    5    1
            TITLE     '**** ROUTINE GETBY - GET BYTE ****'                    5    2
      *                                                                       5    3
      *               SUBROUTINE GETBY(X,I,Y)                                 5    4
      *               X=BYTE STRING                                           5    5
      *               I=BYTE INDEX                                            5    6
      *               Y=OUTPUT VARIABLE                                       5    7
      *                                                                       5    8
            PAGE                                                              5    9
            DEF       GETBY                                                   5   10
            DEF       PTBY                                                    5   11
            DEF       GETBI                                                   5   12
            DEF       PTBI                                                    5   13
            DEF       HALF                                                    5   14
            DEF       PTHLF                                                   5   15
            DEF       UNBIT                                                   5   16
            DEF       PKBIT                                                   5   17
            REF       MASK                                                    5   18
            PSYS      1                                                       5   19
            SYSTEM    UTCSR&G                                                 5   20
            PAGE                                                              5   21
            BBUND     8                                                       5   22
PTAB        DATA      PTAB1                                                   5   23
            DATA,2    0,0                                                     5   24
PTAB1       RES       64                                                      5   25
            DATA      0,0                                                     5   26
GETBY       LCI       0                                                       5   27
            PSM,0     PTAB                                                    5   28
            XW,R1     R15                                                     5   29
            LW,R2     0,R1              ADDRESS OF X                          5   30
            BGEZ      $+2                                                     5   31
            LW,R2     *R2                                                     5   32
            AND,R2    =X'1FFFF'         MASK OUT BP CODE                      5   33
            LW,R3     1,R1              ADDRESS OF I                          5   34
            BGEZ      $+2                                                     5   35
            LW,R3     *R3                                                     5   36
            AND,R3    =X'1FFFF'         MASK OUT BP CODE                      5   37
            LW,R4     2,R1              ADDRESS OF Y                          5   38
            BGEZ      $+2                                                     5   39
            LW,R4     *R4                                                     5   40
            AND,R4    =X'1FFFF'         MASK OUT BP CODE                      5   41
            LW,R5     *R3               R3=I                                  5   42
            AI,R5     =1                INDEX NUMBER                          5   43
            LB,R7     *R2,R5            GET BYTE                              5   44
            ST,R7     *R4               STORE IN Y FOR RETURN                 5   45
            LCI       0                                                       5   46
            PLM,0     PTAB                                                    5   47
            AW,R15    R14                                                     5   48
            B         *R15              RETURN                                5   49
            PAGE      '                                                       5   50
            TITLE     '**** ROUTINE PTBY - PACK BYTE ****'                    5   51
      *               SUBROUTINE PTBY(X,I,Y)                                  5   52
      *               X=BYTE STRING                                           5   53
      *               I=BYTE INDEX                                            5   54
      *               Y=INPUT VARIABLE                                        5   55
      *                                                                       5   56
            PAGE                                                              5   57
PTBY        LCI       0                                                       5   58
            PSM,0     PTAB                                                    5   59
            XW,R1     R15                                                     5   60
            LW,R2     0,R1              ADDRESS OF X                          5   61
            BGEZ      $+2                                                     5   62
            LW,R2     *R2                                                     5   63
            AND,R2    =X'1FFFF'         MASK OUT BP CODE                      5   64
            LW,R3     1,R1              ADDRESS OF I                          5   65
            BGEZ      $+2                                                     5   66
            LW,R3     *R3                                                     5   67
            AND,R3    =X'1FFFF'         MASK OUT BP CODE                      5   68
            LW,R4     2,R1              ADDRESS OF Y                          5   69
            BGEZ      $+2                                                     5   70
            LW,R4     *R4                                                     5   71
            AND,R4    =X'1FFFF'         MASK OUT BP CODE                      5   72
            LW,R7     *R4               R7=Y                                  5   73
            LW,R5     *R3               R3=I                                  5   74
            AI,R5     =1                INDEX NUMBER                          5   75
            STB,R7    *R2,R5            STORE BYTE                            5   76
            LCI       0                                                       5   77
            PLM,0     PTAB                                                    5   78
            AW,R15    R14                                                     5   79
```

```
          B       *R15                RETURN                          5  80
          PAGE
          TITLE   '**** ROUTINE HALF - GET HALFWORD ****'             5  82
*                                                                     5  83
*         SUBROUTINE HALF(X,I,Y)                                      5  84
*         X=HALFWORD STRING                                           5  85
*         I=HALFWORD INDEX                                            5  86
*         Y=OUTPUT VARIABLE                                           5  87
*                                                                     5  88
          PAGE                                                        5  89
HALF      LCI     0                                                   5  90
          PSM=0   PTAB                                                5  91
          XW,R1   R15                                                 5  92
          LW,R2   0,R1                ADDRESS OF X                    5  93
          BGEZ    $+2                                                 5  94
          LW,R2   *R2                                                 5  95
          AND,R2  =X'1FFFF'           MASK OUT BP CODE                5  96
          LW,R3   1,R1                ADDRESS OF I                    5  97
          BGEZ    $+2                                                 5  98
          LW,R3   *R3                                                 5  99
          AND,R3  =X'1FFFF'           MASK OUT BP CODE                5 100
          LW,R4   2,R1                ADDRESS OF Y                    5 101
          BGEZ    $+2                                                 5 102
          LW,R4   *R4                                                 5 103
          AND,R4  =X'1FFFF'           MASK OUT BP CODE                5 104
          LW,R5   *R3                 R5=I                            5 105
          AI,R5   -1                  INDEX NUMBER                    5 106
          LH,R7   *R2,R5              R7=HALFWORD                     5 107
          STW,R7  *R4                 Y=R7                            5 108
          LCI     0                                                   5 109
          PLM=0   PTAB                                                5 110
          AW,R15  8,0                                                 5 111
          B       *R15                RETURN                          5 112
          PAGE                                                        5 113
          TITLE   '**** ROUTINE PTHLF - PACK HALFWORD ****'           5 114
*                                                                     5 115
*         SUBROUTINE PTHLF(X,I,Y)                                     5 116
*         X=HALFWORD STRING                                           5 117
*         I=HALFWORD INDEX                                            5 118
*         Y=INPUT VARIABLE                                            5 119
*                                                                     5 120
          PAGE                                                        5 121
PTHLF     LCI     0                                                   5 122
          PSM=0   PTAB                                                5 123
          XW,R1   R15                                                 5 124
          LW,R2   0,R1                ADDRESS OF X                    5 125
          BGEZ    $+2                                                 5 126
          LW,R2   *R2                                                 5 127
          AND,R2  =X'1FFFF'           MASK OUT BP CODE                5 128
          LW,R3   1,R1                ADDRESS OF I                    5 129
          BGEZ    $+2                                                 5 130
          LW,R3   *R3                                                 5 131
          AND,R3  =X'1FFFF'           MASK OUT BP CODE                5 132
          LW,R4   2,R1                ADDRESS OF Y                    5 133
          BGEZ    $+2                                                 5 134
          LW,R4   *R4                                                 5 135
          AND,R4  =X'1FFFF'           MASK OUT BP CODE                5 136
          LW,R5   *R3                 R5=I                            5 137
          AI,R5   -1                  INDEX NUMBER                    5 138
          LW,R7   *R4                 R7=Y                            5 139
          STH,R7  *R2,R5              STORE HALFWORD                  5 140
          LCI     0                                                   5 141
          PLM=0   PTAB                                                5 142
          AW,R15  R14                 RESTORE REGISTERS               5 143
          B       *R15                RETURN                          5 144
          TITLE   '**** ROUTINE GETBIT- GET BIT ****'                 5 145
*                                                                     5 146
*         SUBROUTINE GETBI(X,I,Y,J)                                   5 147
*         X=BIT STRING                                                5 148
*         I=BIT INDEX                                                 5 149
*         Y=OUTPUT VARIABLE                                           5 150
*         J=INTERLEAVED FLAG                                          5 151
*                                                                     5 152
          PAGE                                                        5 153
GETBI     LCI     0                                                   5 154
          PSM=0   PTAB                                                5 155
          XW,R1   R15                                                 5 156
          LW,R11  0,R1                ADDRESS OF X                    5 157
          BGEZ    $+2                                                 5 158
          LW,R11  *R11                                                5 159
          AND,R11 =X'1FFFF'           MASK OUT BP CODE                5 160
          LW,R14  1,R1                ADDRESS OF I                    5 161
          BGEZ    $+2                                                 5 162
          LW,R14  *R14                                                5 163
          AND,R14 =X'1FFFF'           MASK OUT BP CODE                5 164
          LW,R12  2,R1                ADDRESS OF Y                    5 165
          BGEZ    $+2                                                 5 166
          LW,R12  *R12                                                5 167
          AND,R12 =X'1FFFF'           MASK OUT BP CODE                5 168
          LW,R13  3,R1                ADDRESS OF J                    5 169
          BGEZ    $+2                                                 5 170
          LW,R13  *R13                                                5 171
          AND,R13 =X'1FFFF'           MASK OUT BP CODE                5 172
          LW,R2   *R14                                                5 173
          AI,R2   -1                  INDEX NUMBER                    5 174
          LW,R10  *R13                INTERLEAVED FLAG                5 175
          LW,R0   R2                                                  5 176
          SLS,R6  -5                  WORD INDEX                      5 177
          LW,R7   R6                  WORD INDEX                      5 178
          CI,R10  1                                                   5 179
          BNE     $+2                 NOT INTERLEAVED                 5 180
          AW,R7   R7                  WORD INDEX=WORD INDEX * 2       5 181
          SLS,R6  5                                                   5 182
          SW,R6   R2                                                  5 183
          LCF,R6  R6                  MASK WORD INDEX                 5 184
          LW,R15  MASK,R6                                             5 185
```

```
                LS,R15    *R11,R7             GET BIT                          S  186
                AI,R6     -31                                                  S  187
                SLS,R15   0,R6                                                 S  188
                STW,R15   *R12                STORE IN Y FOR RETURN            S  189
                LCI       0                                                    S  190
                PLW,0     PTAB                                                 S  191
                AW,R15    R14                                                  S  192
                B         *R15                RETURN                           S  193
                PAGE                                                           S  194
                TITLE     '**** ROUTINE PTBI - PACK BIT ****'                  S  195
*                                                                              S  196
*                 SUBROUTINE PTBI(X,I,Y,J)                                     S  197
*                 X=BIT STRING                                                 S  198
*                 I=BIT INDEX                                                  S  199
*                 Y=INPUT VARIABLE                                             S  200
*                                                                              S  201
                PAGE                                                           S  202
PTBI            LCI       0                                                    S  203
                PSW,C     PTAB                                                 S  204
                XW,R1     R15                                                  S  205
                LW,R11    0,R1                ADDRESS OF X                     S  206
                BGEZ      $+2                                                  S  207
                LW,R11    *R11                                                 S  208
                AND,R11   =X'1FFFF'           MASK OUT OP CODE                 S  209
                LW,R14    1,R1                ADDRESS OF I                     S  210
                BGEZ      $+2                                                  S  211
                LW,R14    *R14                                                 S  212
                AND,R14   =X'1FFFF'           MASK OUT OP CODE                 S  213
                LW,R12    2,R1                ADDRESS OF Y                     S  214
                BGEZ      $+2                                                  S  215
                LW,R12    *R12                                                 S  216
                AND,R12   =X'1FFFF'           MASK OUT OP CODE                 S  217
                LW,R13    3,R1                ADDRESS OF J                     S  218
                BGEZ      $+2                                                  S  219
                LW,R13    *R13                                                 S  220
                AND,R13   =X'1FFFF'           MASK OUT OP CODE                 S  221
                LW,R2     *R14                                                 S  222
                AI,R2     -1                  INDEX NUMBER                     S  223
                LW,R10    *R13                INTERLEAVED FLAG                 S  224
                LW,R6     R2                                                   S  225
                SLS,R6    -5                  #ORD INDEX                       S  226
                LW,R7     R6                  #ORD INDEX                       S  227
                CI,R10    1                                                    S  228
                BNE       $+2                 NOT INTERLEAVED                  S  229
                AW,R7     R7                  INTERLEAVED                      S  230
                SLS,R6    5                                                    S  231
                SW,R6     R2                                                   S  232
                LCW,R6    R6                                                   S  233
                LW,R15    MASK,R6                                              S  234
                LW,R14    *R12                                                 S  235
                AI,R6     -31                                                  S  236
                LCW,R6    R6                                                   S  237
                SLS,R14   0,R6                SHIFT TO CORRECT POSITION        S  238
                STS,R14   *R11,R7             STORE BIT                        S  239
                LCI       0                                                    S  240
                PLW,0     PTAB                                                 S  241
                AW,R15    R14                                                  S  242
                B         *R15                                                 S  243
                PAGE                                                           S  244
                TITLE     '**** ROUTINE UNBIT - UNPACK BITS ****'              S  245
*                                                                              S  246
*       SUBROUTINE UNBIT(SW,I,ANS)                                             S  247
*                 SW=STRING ADDRESS                                            S  248
*               I - #ORD INDEX IN SW  -  ASSUMED INTERLEAVED                   S  249
*                 ANS=RETURN  ANS(1),...,ANS(32)=BITS FROM SW                  S  250
*                                                                              S  251
                PAGE                                                           S  252
UNBIT           LCI       0                                                    S  253
                PSW,0     PTAB                                                 S  254
                XW,R1     R15                                                  S  255
                LW,R11    0,R1                ADDRESS OF SW                    S  256
                BGEZ      $+2                                                  S  257
                LW,R11    *R11                                                 S  258
                AND,R11   =X'1FFFF'                                            S  259
                LW,R14    1,R1                ADDRESS OF I                     S  260
                BGEZ      $+2                                                  S  261
                LW,R14    *R14                                                 S  262
                AND,R14   =X'1FFFF'                                            S  263
                LW,R12    2,R1                ADDRESS OF ANS                   S  264
                BGEZ      $+2                                                  S  265
                LW,R12    *R12                                                 S  266
                AND,R12   =X'1FFFF'                                            S  267
                LW,R2     *R14                                                 S  268
                AI,R2     -1                                                   S  269
                SLS,R2    1                                                    S  270
                LW,R5     *R11,R2                                              S  271
                LI,R2     32                                                   S  272
                LI,R3     0                                                    S  273
LOOP            LI,R4     1                                                    S  274
                SLC,R4    1                                                    S  275
                ST,R4     *R12,R3                                              S  276
                AI,R3     1                                                    S  277
                BDR,R2    LOOP                                                 S  278
                LCI       0                                                    S  279
                PLW,0     PTAB                RESTORE REGISTERS                S  280
                AW,R15    R14                                                  S  281
                B         *R15                RETURN                           S  282
                TITLE     '**** ROUTINE PKBIT - PACKS 32 BITS ****'            S  283
*                                                                              S  284
*       SUBROUTINE PKBIT(SW,I,ENT)                                             S  285
*                 SW=STRING ADDRESS                                            S  286
*               I - #ORD INDEX IN SW - ASSUMED INTERLEAVED                     S  287
*                 FLAG=#ORDS TO BE ENTERED INTO STRING SW                      S  288
*                 ENT=ENT(1),...,ENT(32)                                       S  289
PKBIT           LCI                                                            S  290
                PSW,0     PTAB                                                 S  291
```

```
 XW,R1     R15                                    5  292
 LA,R11    0,R1            ADDRESS OF SW          5  293
 BGEZ      $+2                                    5  294
 LA,R11    *R11                                   5  295
 AND,R11   =X'1FFFF'                              5  296
 LA,R14    1,R1            ADDRESS OF I           5  297
 BGEZ      $+2                                    5  298
 LW,R14    *R14                                   5  299
 AND,R14   =X'1FFFF'       MASK OUT OP CODE       5  300
 LW,R12    2,R1            ADDRESS OF ENT         5  301
 BGEZ      $+2                                    5  302
 LW,R12    *R12                                   5  303
 AND,R12   =X'1FFFF'       MASK OUT OP CODE       5  304
LW,R2    *R14                                     5  305
AI,R2    -1                                       5  306
SLS,R2   1                                        5  307


LI,R5    =32                                      5  308
LI,R7    0                                        5  309
AI,R12   32                                       5  310
AW,R7    *R12,R5                                  5  311
SLD,R6   1                                        5  312
BIR,R5   LOOP1                                    5  313
SLD,R6   -1                                       5  314
STW,R7   *R11,R2                                  5  315
 LCI      0                                       5  316
 PLW,0    PTAB                                    5  317
 AW,R15   R14                                     5  318
 B        *R15                                    5  319
 END                                              5  320
```

2.6.115 SUBROUTINE PKBYT, LISTING ALSO INCLUDES:

2.6.116 SUBROUTINE PKHW
2.6.121 SUBROUTINE UPBYT
2.6.122 SUBROUTINE UPHW

```
SUBROUTINE:  UPBYT,PKBYT,UPHW,PKHW

*  *  UPBYT,PKBYT,UPHW,PKHW                              *   1
      DEF      UPBYT,PKBYT,UPHW,PKHW                     *   2
      REF      GETBY,PTBY,HALF,PTHLF                     *   3
UPBYT EQU      GETBY                                     *   4
PKBYT EQU      PTBY                                      *   5
UPHW  EQU      HALF                                      *   6
PKHW  EQU      PTHLF                                     *   7
      END                                                *   8
```

2.6.123 SUBROUTINE FMTNUM, LISTING ALSO INCLUDES:

2.6.124 SUBROUTINE INTRNUM

```
ROUTINE:  FMTNUM, INTRNUM

*  *  FMTNUM, INTRNUM                                          7  1
         DEF     FMTNUM                                       7  2
         DEF     INTRNUM                                      7  3
HARGS    DSECT                                                7  4
         RES     1              FMTTYP                        7  5
         RES     1              FMTCHG                        7  6
FMTNUM   RES     1                                            7  7
INTRNUM  DATA    0,0                                          7  8
         END                                                  7  9
```


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